

FINANCIAL TIMES

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World stock markets
scale new
peaks, Page 10

World news

Business summary

Israel debates Lebanon pull-out

The Israeli Cabinet is today expected to conclude the debate on proposals for a staged withdrawal of its troops from southern Lebanon.

France sent 1,000 paratrooper reinforcements, anti-air police and soldiers to the Pacific territory of New Caledonia, which is in a state of emergency after more violence. Page 2

Libyan shot

Libyan diplomat Farag Omar Mikhaym was shot dead near his Rome flat after firing back at his assailants. Last January, the Libyan ambassador to Rome died in a similar attack. Page 2

Missile fire inquiry

The West German parliament's defence committee will question Herr Manfred Wörner, the Defence Minister, about the fire in a U.S. Pershing-2 missile, which killed three U.S. soldiers. Page 2

Argentina rebuilds

Argentina's armed forces have replaced losses caused by the Falklands conflict and built up the capacity to wage a war of attrition against the British on the Falkland Islands, according to an English university report. Page 2

Kennedy ends tour

U.S. Senator Edward Kennedy ended his South African tour without a planned speech in a Soweto church because of security risks. Later, in Zambia, he was to meet banned black leaders. Page 12

Nuclear decision

Dutch Cabinet has agreed that the Netherlands needs at least two more nuclear power plants by the year 2000. Page 2

Submarine repairs

China has launched a repair ship for submarines with seven workshops on board and facilities for submariners to rest at sea.

Kenya bank return

Kenya's Barclays Bank reinstated 2,800 workers dismissed on Friday for defying an order to return to work. They were protesting against moves to limit fringe benefits, including low-interest loans.

Pakistan poll plan

Pakistan leader General Zia-ul-Haq ordered elections for next month but barred parties from the poll and said the future parliament must abide by his Islamisation campaign. Page 2

Fugitive back in HK

Fugitive businessman Mr. Amos Davy returned to Hong Kong after his arrest in Britain last month to serve a five-year jail sentence for fraud, ending a two-year international manhunt.

Dallas air fare cut

UK tour group Jetsave is running four February four-day air returns from England to Dallas in co-operation with British Caledonian Airlines for £270, about £200 less than the next cheapest fare.

Mail-order brides

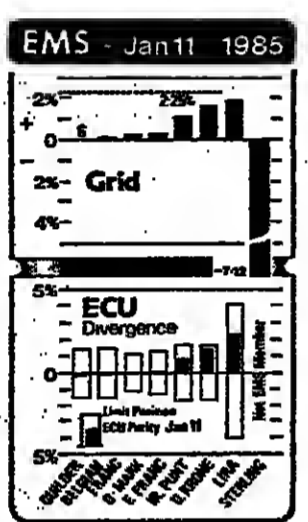
The Spanish Pyrenean village of Plan will hold a springtime festa to welcome hundreds of women who answered a newspaper advertisement for wives, placed by the town's unmarried men.

KLM flies new perpetual bond

KLM, the Dutch airline, is raising SwFr 200m (\$75.2m) through an unsecured bond issue, the first time a foreign borrower has made such an issue in Switzerland and the first perpetual issue made by a borrower other than a country or bank in the international bond markets.

Page 15
FRENCH telecommunications authority Direction Générale des Télécommunications will this week report a return to profit of about FFfr 3.7bn (\$581m) for 1984 after losing nearly FFfr 1bn in 1983. Page 15

CURRENCIES showed little overall change within the European Monetary System last week as attention



remained focused on the U.S. dollar. That showed little change on the week but fluctuated quite sharply between DM 3.13 and DM 3.16, clearly defined support and resistance levels. Without breaking out of that range, there was unlikely to be much movement by EMS currencies. The Belgian franc continued to improve, however, and moved above the D-Mark as the latter became the second weakest currency. The Dutch guilder remained the weakest member.

The chart shows the two constraints on European Monetary System exchange rates. The upper grid, based on the weakest currency in the system, defines the cross rates from which no currency (except the lira) may move more than 2% per cent. The lower chart gives each currency's divergence from its "central rate" against the European Currency Unit (ECU), itself a basket of European currencies.

FOREIGN car manufacturers last year gained 36 per cent of the French automobile market, the first time they have held the single largest share. Page 2

AUSTRIA, France and Britain have emerged as front runners for a £700m (\$740m) defence order likely to be placed soon by the Indian Government for howitzer gun systems. Page 3

MOBIL, the second largest U.S. oil company, is to seek approval from its shareholders for big changes to its corporate bylaws which will make it more difficult for unwelcome suitors to win a takeover battle. Page 15

ADVANCED Micro Devices, the California-based microprocessor manufacturer, has announced third-quarter net profits of \$29.3m, sharply down from the record levels of the previous three months, providing further evidence of the current downturn in the world semiconductor industry. Page 15

NOVA PARK'S dissident shareholders have called on a Zurich judge to order an extraordinary meeting of the Swiss-based hotel group as soon as possible. Page 15

DAVY McKEE, the UK-based engineering concern, is to build a desulphurisation plant for the controversial Buschhaus power station in West Germany under a contract worth about £25m (\$95.2m) Page 3

ROBERT MAXWELL, the UK publisher, plans to float the newspaper in the Mirror Group on the London Stock Exchange

UK prepared to let rates rise in defence of pound

BY PHILIP STEPHENS AND PETER RIDDELL IN LONDON

THE British Government is extremely concerned about the recent slide in sterling on foreign exchange markets and is ready to see interest rates rise further if the currency's rapid fall continues.

Spokesmen for the Treasury yesterday acted quickly to deny press reports that ministers were indifferent to the sharp fall in the pound.

Mrs Margaret Thatcher, the Prime Minister, and Mr Nigel Lawson, the Chancellor of the Exchequer, discussed the position and were said to be dismayed by such suggestions.

The Government's attitude was that the present broadly non-interventionist strategy on the long-term level of sterling would continue, but that that did not mean a total hands-off approach in the face of sudden large movements.

Leaders of the Labour Party will this morning consider whether to press for an emergency statement in parliament this afternoon or if they should wait for Mr Lawson's speech in tomorrow's debate on unemployment.

Mr Lawson yesterday met other senior ministers to discuss strategy for the March 19 budget.

The public emphasis on ministers' concern follows the failure of Friday's rise in bank base rates to 10% per cent to halt sterling's fall. It also reflects official acknowledgement that the currency's weakness can no longer be blamed entirely on the strong dollar and falling oil prices.

Officials emphasised that the Government was not prepared to run the risk of its anti-inflation policy being blown off course by too sharp a fall in sterling's value.

That did not mean the Government would defend any particular exchange rate, nor was it ready to intervene on foreign exchange markets with the official reserves.

It did imply, however, that Mr Lawson would not resist a further rise in base rates if the situation deteriorated. The Treasury indicated that it had "acted without hesitation" in endorsing a large rise in interest rates last July.

The Government is obviously not keen to encourage any new rise in borrowing costs, but it was emphasised yesterday that the dominant consideration was that it should not run risks with its monetary policy.

Friday's increase was readily endorsed by the authorities after it be-

came obvious that sterling's fall was signalling the need for a tightening of monetary policy.

The key money-supply measure, sterling M3, is at the top of its 6 to 10 per cent annual target range and private credit demand has been growing strongly.

The Government hopes that the rise so far in base rates, coupled with the expression of public concern over the situation, might be enough to restore confidence.

There is also the possibility that oil prices might firm in response to the cold weather, or that U.S. interest rates might soften further, taking some of the pressure off the pound.

The immediate response of the markets on Friday, however, was not encouraging, with the higher rates failing to stop a fall in the pound's value to less than \$1.12 in New York.

Many London economists believe it will take firm action by the Government - perhaps along the lines of the 24-point rise in base rates seen last July - to stabilise the markets.

Hattersley plan, Page 5; UK exports, Page 12; money markets, Page 26

Missile talks 'depend on space weapons ban'

BY PATRICK COCKBURN IN MOSCOW AND REGINALD DALE IN WASHINGTON

MR ANDREI GROMYKO, the Soviet Foreign Minister, said last night that if no progress was made towards banning space weapons in the forthcoming disarmament talks with the U.S., it would be superfluous to try to limit intermediate and strategic nuclear missiles.

Speaking on Soviet television, Mr Gromyko laid down Moscow's position in the disarmament negotiations agreed upon in Geneva last week. He emphasised that the Soviet Union had concluded that "it is impossible to examine productively questions of strategic nuclear armament and intermediate-range nuclear weapons without considering questions of space, outer space."

In Washington, Mr George Shultz, the U.S. Secretary of State, responded calmly to Mr Gromyko's remarks, saying that the consequences for the negotiations "remained to be seen." Speaking on television, he brushed aside suggestions that Mr Gromyko had injected "a new element of uncertainty" into the talks or doomed their chances of success.

Mr Shultz said the Soviet Foreign

Minister had spent considerable time during last week's talks making the same point. He said that in Geneva, Mr Gromyko had accepted that there could be exceptions to the Soviet principle that progress in one of three sets of talks was dependent on progress in the others.

Mr Caspar Weinberger, U.S. Defence Secretary, in a separate television interview, took a tougher line in response to Mr Gromyko's comments, saying they seemed to conflict with the agreement in Geneva that the talks should proceed without preconditions. Mr Weinberger insisted that there was no possibility of the U.S. giving up its research into, or deployment of, a strategic defence system (the so-called Star Wars programme).

The Soviet Foreign Minister yesterday also firmly rejected the U.S. position that research into space weapons and anti-ballistic missile systems was different from their development and deployment. Mr Gromyko called the distinction "near absurd."

"Who can guarantee that the line will be drawn after research has

been completed?" he asked. "Will there not be people, scientists and others, who will say: 'Sorry, we have spent so many billions of dollars on research, so why waste all this money?' Deployment would be almost inevitable."

He vigorously attacked the argument, which he described as the U.S. position, that the militarisation of space could be banned but not research because it was impossible to verify what research was going on.

Admitting that written research might be difficult to verify Mr Gromyko said that nevertheless "there is often some proving ground next to a laboratory" which could be seen by satellites.

Mr Weinberger said that if the research the U.S. was carrying out showed that a feasible, thoroughly reliable defensive system could be developed - and he believed it could - the U.S. would then be prepared to discuss ways of deploying it. He again made clear that the U.S. administration's aim, in discussing Star Wars, would not be to negotiate.

Continued on Page 12

BA will offer cash to end Laker dispute

BY DUNCAN CAMPBELL-SMITH IN LONDON

BRITISH AIRWAYS has decided in principle to make a private payment to Sir Freddie Laker as part of its attempt to resolve outstanding U.S. litigation against it which is delaying plans to privatise the airline this year.

The payment designed to end the dispute over BA's alleged involvement with the collapse of Sir Freddie's Skytrain service in 1982 would be among settlements now being finalised by Linklaters and Paines, BA's London solicitors, after talks with more than 50 other parties.

An approach has been made to Sir Freddie and his advisers at the weekend as a late addition to the process. BA's solicitors met them on Friday at the Sonesta Beach Hotel in Key Biscayne, Florida, where talks were still continuing last night. A private payment by BA to Sir Freddie of anything up to \$5m is understood to be at stake.

The meeting reflects a significant change of heart by BA, which is anxious to put its legal difficulties behind it and resume progress towards privatisation. "We have all got more important things to do than continue fighting legal disputes which at the end of the day would lead to nothing," said Mr Gordon Dunlop, the airline's chief financial officer, in London yesterday.

The main plaintiff against BA in the U.S. courts is Mr Christopher Morris, the liquidator of Laker Airways. He is suing BA and 10 other

international airlines for treble damages of \$1.05bn on behalf of Laker Airways' creditors, in a case awaiting trial this year in the District Court of Washington DC.

Sir Freddie and Lady Laker were the sole shareholders of Laker Airways, which collapsed in 1982, but they have no legal status in the present action brought by Mr Morris. All the defendants have been actively pursuing an out-of-court settlement since early last month - but they have firmly resisted, until now, any moves to offer separate compensation to Sir Freddie.

Legal counsel on both sides of the Atlantic, however, have persuaded the airlines to drop this attitude in the hope of ensuring that a settlement with Mr Morris might write the final chapter in the Laker Airways story.

Unless Sir Freddie is involved directly in any agreed deal, "he could have some nuisance value," as Mr Dunlop put it. "We are buying a signature. It may be an expensive signature. But he would be barred for ever more from making further trouble."

BA and its advisers have been assigned responsibility for dealing with Sir Freddie, in accordance with the decision of the co-defendants last month to let BA take charge of all negotiations with the Laker liquidator on their joint behalf.

Continued on Page 12

Saudi Arabia warns on petrochemicals

BY TONY JACKSON IN LONDON

SAUDI ARABIA'S state industrial holding company Sabic has issued a strong warning to the European chemicals industry on the dangers of protectionism.

Mr Ibrahim A. Salamah, Sabic managing director, denied that Saudi production of petrochemicals would be large enough to cause serious market disruption in Europe or elsewhere.

The Sabic statement was strongly critical of a paper released by Cefic, the European chemical industry association, last November which called on the EEC to monitor Saudi sales of petrochemicals in Europe, and called for protection from "excessive imports."

Sabic said: "Our main drive is to ensure that our products would meet the highest international stan-

dards, and that our factories would make reasonable profits. We aim at strong economic competitiveness, for we believe it is the only path that could lead to a gradual and healthy process of restructuring the industry."

EEC exports to Saudi Arabia in 1983, said the statement, were worth \$20bn and imports of Saudi products amounted to only \$10.5bn. Almost 75 per cent of Europe's merchandise exports entered Saudi Arabia duty free. "It seems only natural that we should enjoy some reciprocal rights."

Cefic said last night: "We have heard some of these arguments from Sabic before, and we are disappointed that they think our paper was protectionist. We thought it was reasonably balanced."

Coke puts some U.S. sparkle in the Tour de France

By Paul Betts in Paris

A SMALL revolution is taking place in the world of French sport. The Tour de France - a national institution and probably the most venerable of all French sporting events - has fallen prey to Coca-Cola.

America's favourite soft drink has dislodged Perrier, the leading French sparkling water, as the official drink of the Tour de France bicycle race.

For the past 32 years, it was a familiar ritual to see competitors rush to the Perrier van after crossing the finishing line at the end of each gruelling stage in the race. They would drink as much of the bubbly water as they could and, inevitably, the winner of each stage would be photographed holding his little green Perrier bottle.

From this year, however, the competitors will find Coke at the end of each stage in the race. Some professional cyclists have already said they are unhappy about the change, but others have welcomed Coke's arrival if it helps to boost the Tour.

Tour organisers appear to have been seduced by Coca-Cola because they feel its sponsorship will help to promote the race into a bigger international event, especially in the U.S.

They argue that cycling is taking off as a sport. America and the Coca-Cola sponsorship is bound to lead to greater visibility of this annual French institution in the U.S.

Coca-Cola's film subsidiary, Columbia Pictures, is also showing interest in cycling and the Tour in particular. It is considering producing a film called "The Yellow Jersey" after the colour of the shirt worn by the leader and ultimate winner of the race.

Perrier for its part, apparently regards the Tour as no longer essential for its image. Indeed, it has been cultivating a more upmarket image in France and abroad.

Perhaps the biggest irony is that Coke takes over from Perrier while the Socialist Government has sought to defend French traditions against the invasion of American products and culture. Despite spirited campaigning by Mr Jack Lang, the Minister of Culture, however, the latest fads from the other side of the Atlantic have continued their inexorable penetration of France.

In the circumstances, it was probably inevitable that even the Tour should succumb to one of the popular symbols of modern America.

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OVERSEAS NEWS

Paris increases New Caledonia police strength

BY PAUL BETTS IN PARIS

THE FRENCH Government dispatched at the weekend another 1,000 gendarmes and riot police forces after the sudden upsurge of violence in the Pacific territory of New Caledonia.

For the second time in the history of the French Fifth Republic a state of emergency was imposed on a French colonial territory in the face of the riots and violence which followed the murder of a young white settler and the subsequent death of two hard-line leaders of the New Caledonia independence movement. A state of emergency was imposed in New Caledonia on Saturday, after which the French Government dispatched additional French police forces to the Pacific islands.

The police forces have now been increased to 2,500 men in New Caledonia but M. Edouard Pisan, the French Government's special envoy in the territory, can now also avail himself under the state of emergency of 5,000 French soldiers stationed in the colony.

The weekend incidents are among the most violent to have hit the territory so far and come at a time when the French Government was hoping that its recent proposals to hold a

Foreigners raise share of French car market

By Paul Betts in Paris

FOREIGN CAR manufacturers gained for the first time last year the single largest share of the French automobile market with nearly 36 per cent of total new registrations.

Led by Ford, Opel, Fiat and Volkswagen, the foreign car makers' 35.9 per cent of the French market topped the domestic market penetration of the French private Peugeot group with 33.1 per cent and of the French state-owned Renault group with 31 per cent.

Although new registrations declined by 12.5 per cent to 1,738,243 cars in 1984, the foreign car makers' share rose from just over 2m in 1983, the foreign manufacturers saw their overall sales in volume fall by only 4.5 per cent on the decline in French market. By contrast, Renault's sales dropped 23.1 per cent and the Peugeot group's sales fell by 10.4 per cent compared with 1983.

The continuing strength of foreign imports on the domestic market are adding to the general problems of the French automobile industry. The state-owned Renault group, which was overtaken by the private Peugeot group in domestic market share last year, is now undergoing a profound crisis and is expected to report a loss of up to FF10bn (\$955m) for 1984.

Peugeot, whose performance is being sustained by the success of its Peugeot 205 supermini, is now hoping to return into the black this year.

However, the private car group is now faced with a complex decision on the future of its troubled Talbot car marque and efforts to return its Citroën division into profit.

The French Government is becoming increasingly worried about the performance of Renault whose new Super 5 mini model launched last year has failed so far to help the state group recover from its current slump.

Last year foreign car registrations totalled 630,548 new cars or 35.9 per cent of the market, compared with 52.2 per cent of the market in 1983. Renault with 545,261 new registrations saw its market share decline from 33.1 per cent in 1983 to 31 per cent last year, while Peugeot with 562,218 registrations saw its domestic market share increase from 32.2 per cent to 33.1 per cent last year.

Pershing probe

U.S. MILITARY experts have arrived in West Germany to investigate a fatal fire involving a Pershing missile amid signs that the accident has renewed controversy about the missile's deployment. Reuters reports from Bonn.

Both West German opposition parties have demanded a full inquiry by the centre-right Bonn Government, which has made clear its considers the accident a U.S. affair. Three U.S. soldiers died and 16 were injured.

Cruise out of favour

A large majority of Belgians want the deployment of U.S. cruise nuclear missiles, due to begin in March, to be postponed or cancelled, according to an opinion poll published yesterday. Reuters reports from Brussels.

About 45 per cent of respondents favoured outright cancellation of the Belgian cruise programme, while only 18 per cent supported immediate deployment.

HK prime rate cut

Hong Kong's leading banks stepped a 3 percentage point cut in the prime lending rate at the weekend in response to a steady strengthening of the HK dollar. David Dodwell reports from Hong Kong. The rate stands at 10.5 per cent.

Reagan set to grant CEA reprieve

BY NANCY DUNNE IN WASHINGTON

PRESIDENT REAGAN was reported over the weekend to have granted a reprieve to the Council of Economic Advisers, which some White House advisers had wanted to abolish.

According to White House officials, the President is likely to approve a continuation of the Council and to announce soon a successor to Mr Martin S. Feldstein, the former CEA chairman who left in July.

Some sources said the decision to retain the Council was based on cost estimates of eliminating it. However, the CEA would require Congressional approval since Congress established it.

Meanwhile, as the various budget sessions are held in Washington, Mr Robert Dole, the Senate majority leader, said there would be no new taxes this year.

He indicated that Senate Republicans, who have been meeting almost daily with Administration officials to examine Budget proposals, will try to push for a freeze of the fiscal year 1986 Budget at fiscal 1985 levels.

Appearing on a Sunday morning news programme, Mr David Stockman, the U.S. Budget director, defended President Reagan against Democratic charges that the President has

"walked away" from making difficult choices on the budget deficit, leaving the top political decisions up to Congress.

Mr Stockman said that in November and December the President "went through the budget in excruciating line item detail making choices" for proposals now being presented to Senate Republicans.

"Senator Dole realises he is taking his army into an extraordinary battle, and he wants to get them prepared," Mr Stockman said.

Mr Stockman said he would support a freeze of many programmes for 1986 at 1985 levels but he also wanted reductions on some and elimination of others.

He listed among specific targets for cuts: subsidies for Amtrak (train service), the farm programme; veterans' health benefits and state and local revenue sharing.

He acknowledged that he may not live to see the balanced budget, the President promised during the Presidential campaign for the end of his term. In fact, he said, he didn't know the Administration would reach a later goal of reducing the budget deficit to \$100bn (\$95bn) by fiscal 1988.

Peru seeks extension of repayments freeze

BY PETER MONTAGNON, EUROMARKETS CORRESPONDENT

PERU HAS asked its 275 creditor banks for a further one-month freeze on debt repayments to allow time for the country's proposed \$20.75bn economic mission to examine its economy.

The request came just as previous arrangements to roll forward maturing debt were due to expire today and although it has not been formally endorsed by the Citibank-led committee of leading creditor banks, it is known to reflect their view that a no extension should be kept as short as possible.

Banks want to keep up pressure on Peru to seek a new

meeting to discuss interest arrears now thought to total some \$160m. Such a meeting is expected around the turn of the month and well before the new extension expires on February 14.

Meanwhile, Peru has announced a further change in its economic team with the promotion of Sr Victor Miro Quesada, general manager of the state-owned Banco de la Nación, to head the external debt committee. He replaces Sr Garrido Lecca, who was appointed Finance Minister earlier this month.

Venezuela's leading creditor banks are to restart talks on the legal terms and conditions of the country's proposed \$20.75bn public sector debt rescheduling which have been stalled since last October.

The decision follows efforts by Venezuela to speed up settlement of private sector interest arrears, which have always been seen as a major obstacle to completion of the rescheduling agreement.

Venezuela is to hold a seminar for foreign bankers in Caracas this Thursday to explain its new policy on private sector debt

and this is likely to be followed around the end of the month by a meeting with the committees of leading creditors chaired by Chase Manhattan.

This meeting will also have to discuss a further temporary freeze on debt repayments, replacing the present arrangements which expire on January 31.

But bankers say that up to six months work may still be needed on the rescheduling agreement because it is a complicated multi-year deal that includes a limited option for lenders to switch the currency of their loans out of U.S. dollars.

Kinnock calls for stronger trade links with Managua

BY TIM COONE IN MANAGUA

TRADE and economic links between Nicaragua and the UK should be strengthened, according to Mr Neil Kinnock, leader of the British Labour Party.

Speaking just before his departure from Managua at the weekend after attending the bilateral talks between the U.S. and Cuba which led to "new developments".

"There are both moral and material advantages in increasing our levels of participation in the Nicaraguan economy," he described British aid levels to Nicaragua as "pathetic, at around \$60,000 a year."

"There is trade potential in Nicaragua and the society is in desperate need for investment," he said.

Mr Kinnock identified in particular the gold-mining and fisheries sectors as areas which could benefit from British trade links. He said that in his inaugural speech that a foreign investment law would be drawn up this year.

Mr Kinnock said also that in

his meeting with Sr Fidel Castro, the Cuban President, in Managua last Friday, he believed Sr Castro to be fully committed to the Contadora group peace efforts in Central America and that the recent bilateral talks between the U.S. and Cuba could lead to "new developments".

"There is a very clear philosophical adjustment coming from Fidel Castro, that it would be wrong for Nicaragua to fall into the trap that Cuba fell into, or was pushed into, 20 years ago. This is an encouragement for the Sandinistas and a demonstration of sagacity by Fidel Castro."

President Castro opened a major new sugar factory in Nicaragua on Friday which has been largely financed by the Cubans. In a surprise move he announced the conversion of the \$70m (\$61.8m) Cuban investment in the project, which was to have been paid back to Cuba over 12 years, into a donation to the Nicaraguan Government.

Editorial comment, Page 10

Row erupts in Washington over aid to Afghan rebels

BY REGINALD DALE, U.S. EDITOR IN WASHINGTON

NEW CONTROVERSY over covert U.S. aid to the Afghan rebels erupted in Washington at the weekend, following reports that the programme had developed rapidly into the largest U.S. covert operation since the Vietnam war. The Washington Post said that Congress had nearly tripled the Reagan Administration's initial request for the programme to about \$250m for the current fiscal year.

The new figure would amount to more than 80 per cent of the Central Intelligence Agency's annual budget for covert operations, dwarfing the roughly \$24m the agency spent annually to back the right-wing "contra" rebels in Nicaragua until congressional authorisation was suspended last year.

With other countries in the Middle East and Asia contributing about \$200m, the annual aid package to the Afghan insurgents was approaching \$500m, the Post reported.

The rapid expansion of the programme had led to heated arguments in Washington between those who fear that it is getting out of hand and may trigger an escalation of Soviet military activity in Afghanistan, and those who believe that the U.S. is still not doing enough for the rebels.

Congressional backers of the operation argue that the equipment supplied to the rebels is second rate and that they are not being given enough supplies and ammunition.

The CIA reportedly vetoed plans to send the insurgents sophisticated American ground-to-air missiles, but money was said to have been provided for advanced, heavy, anti-aircraft cannon.

By the end of the year, the U.S. programme, which supplies weapons, ammunition, clothing, medical supplies and money for food, is expected to support an estimated 200,000 to 300,000 full or part-time insurgents against a Soviet army of 110,000 troops, the Post said.

Argentina's 'military capacity improved'

By Robert Graham, Latin American Editor

ARGENTINA'S armed forces have replaced their losses caused by the 1982 Falklands conflict and have built up a capacity which would enable it to wage a war of attrition against the British on the Falkland Islands, according to a report released today by the University of Bradford.

The report discounts any attempt by the democratic government of President Raul Alfonsín to invade the island. However, it says Argentina is overcoming all the deficiencies shown up by the war and has acquired a capacity enabling it to engage in low intensity military operations.

The report concludes that this could make defence of the Falklands immensely more costly.

Among the principal improvements in Argentina's armaments is a "complete replacement" of the air force and naval air force.

The number of front line aircraft has risen from 70 at the end of the conflict to 100—considerably higher than the 130 at the start of the war. There has also been rapid expansion of air-launched shipping missiles with up to 28 excess missiles and a number of Israeli-made Crotchet anti-ship missiles.

The report also claims that up to 80 front line aircraft have provision for aerial refuelling, which would substantially increase strike and intercept capability. Argentina's capacity to operate over the Falklands. The air force has also acquired sophisticated French-made anti-runway Durandal bombs which could be used against the Mount Pleasant air base, being built on the Falklands.

Argentina has also made improvements in its maritime reconnaissance and early warning capability in tracking submarines, surface ships and aircraft.

Yesterday the Foreign Office said the Government was aware of the report but made no comment. In private, officials in Whitehall say they are carefully monitoring the Argentine military build-up and say discussions must be made between the two countries to purchase weapons and equipment, orders and delivery.

For example, the report says 24 Skyhawk fighters have been delivered to the air force and naval air force. Apparently these have been negotiated in a deal with the Israeli Government but are apparently not yet in Argentina as their transfer would require U.S. Government approval.

The report also misses out some of the Argentine purchases, for example, of 45 Xavante jet fighters from Brazil.

However, Whitehall officials do not challenge the broad conclusions of the report.

China set to buy arms from U.S.

By Our U.S. Editor in Washington

THE U.S. has reached a preliminary understanding with China to sell the Chinese navy an arm's package that would include modern anti-submarine weapons and defence systems against missile attack, U.S. officials said at the weekend.

The deal, due to be formally concluded later this month, would mark the first concrete results of more than a year of high-level contacts between Washington and Peking on possible U.S. arms sales, dating back to the visit to China by Mr Caspar Weinberger, the Defence Secretary, in September 1983.

News of the proposed sale came as Gen John Vessey, chairman of the U.S. Joint Chiefs of Staff, began talks in Peking at the start of a week-long visit. U.S. officials said the sales would include naval submarine detection devices, torpedoes, gas turbine engines and the Phalanx ship-defence system.

Lisbon raises consumer prices

By Diana Smith in Lisbon

THE PORTUGUESE Government announced sweeping increases this weekend in the prices of telecommunications and postal services, the utilities, farm fertiliser, bread, milk and sugar.

Averaging between 9 and 22 per cent against 1984 inflation of 23 per cent, the price rises in public services, utilities and foodstuffs such as bread and milk will ease some of the burden on this special funds that go to subsidising prices to the consumer as they have run up a debt of Esc 180bn (\$1.0bn).

Petrol has now risen to Esc 109 a litre (\$22.2 a gallon), one of the highest rates in Western Europe, whereas Portugal's wage levels are the lowest in the Community. The price of a litre of milk is now Esc 47.

The present minimum industrial wage is only 15,000 a month. Real wages dropped by an estimated 10 per cent with the rigorous austerity of 1984, and the average Portuguese earns no more than the national minimum wage.

Zia calls parliamentary election

BY MOHAMMED AFTAB IN ISLAMABAD

President Zia ul-Haq, Pakistan's military ruler, has announced parliamentary elections for February 25 but has banned political parties from taking part.

The elections were immediately denounced by opposition politicians as a fraud—a charge they also made about the December 19 referendum which assured General Zia five more years in power.

General Zia announced the election in a televised address on Saturday night. He asked 35m voters to go to the polls and elect 207 members of the national assembly to be called "shura" or the Islamic Advisory Council. He raised the number of seats by 19 to accommodate more women and representation of religious minorities in this predominantly Moslem nation.

The electorate will vote on February 28 for four separate legislatures for the provinces (states) of Punjab, Sind, Baluchistan and North West Frontier.

The four provincial legislatures will elect 87 senators by the middle of March. The

shura and the Senate will meet in Islamabad on March 23. It will be the first time they have assembled since July 6, 1977 when they were disbanded by Gen Zia, following his military take-over from the then Prime Minister Zulfikar Ali Bhutto.

Gen Zia has banned most political parties, including the standing in the elections as well as many former cabinet ministers and ministers in the provincial governments. He can, however, relax the ban on application by the barred individuals.

Included in the ban are Begum Nusrat Bhutto and her daughter Miss Benazir Bhutto who head the Pakistan Peoples Party (PPP) founded by former Prime Minister Bhutto.

Political parties, all of which have been banned for the last five years, will have no role in the elections—a move which will lead to further confrontation between Gen Zia and the politicians.

Candidates in the elections must be "good, practising Moslems," and stand on their own not as members or nominees of parties. They must not have been convicted of moral

offences, including moral turpitude, smuggling, profiteering, hoarding, and adulteration of foodstuffs. Moslems will vote for Moslem candidates; non-Moslem will vote for their own candidates.

Gen Zia asked the electorate not to vote for drinkers, smugglers, anti-social elements, gamblers, and those who oppose Pakistan's Islamic ideology.

In his address, General Zia said that after the elections are over, and the future parliament meets on March 23, "the process of transfer of power will commence, but he did not specify dates. He has recently said that the transfer of power will not be from the military regime to the elected civilians. The two will participate in a "power-sharing" arrangement.

The nation's unanimously adopted constitution of 1973, major chunks of which General Zia has already suspended, will be further amended to provide more powers for the President, reduce the authority of an elected civilian Prime Minister, and create a Turkish-style National Security Council.

Israeli Cabinet debates troop pullout plan

BY DAVID LENNON IN TEL AVIV

PROPOSALS for a staged withdrawal of Israeli troops from Lebanon were presented to the Cabinet yesterday by Mr Yitzhak Rabin, the Defence Minister, and senior army officers. The Cabinet will meet again today and is expected to conclude its debate on the plan.

If approved by Cabinet, the withdrawal will begin with a pull-back from the populous town of Sidon and end in the third and final stage with a withdrawal to behind the Israel-Lebanon border.

Several Likud members of the Cabinet oppose the idea of announcing a timetable for withdrawal. Prominent among them is Prof Moshe Arens, the former Defence Minister, who argues that such a declaration would mean that no one in southern Lebanon would be willing to co-operate with Israel and recruitment to the Israel-backed south Lebanon militia would halt. However, he is believed to be in the minority in Cabinet.

By working out a withdrawal plan, albeit without a timetable as yet, Tel Aviv would be

answering Beirut's basic demand that it must know Israel's intentions before it can agree to the redeployment of UN forces in Lebanon. Disagreement over this issue caused the current stalemate in the negotiations.

Mr Rabin's goal is withdrawal to the international border with

the internal security force, in hilltop villages in the Kharoub, are the preliminary stages for the establishment of a future wider role for the Lebanese Army in conjunction with United Nations troops once Israeli forces pull out of Lebanon.

The successful deployment of the army, which was welcomed with showers of rice and flower petals was overcast by an atmosphere of gloom in the capital, where a series of car bombs and explosions killed at least two people and injured many others over the weekend.

Nine people have died and 70 wounded in Beirut in the past four days.

The proposal stipulates that each of the three interim stages would remain in effect for a testing period lasting a number of weeks.

Israel would use these periods to review the effects of the partial pull-back and to re-

examine the chances of a negotiated accord.

The plan may be implemented unilaterally by Israel if no agreement can be reached with the Lebanese on the policing of the areas to be evacuated by the Israelis.

Lebanon for its part has let it be known that, in return for a detailed Israeli plan of withdrawal, it will be prepared to reconsider its position on the expansion of the area of operation of the United Nations Interim Force in Lebanon (Unifil).

Israel is expected to attend at least one more session of the military-level talks with the Lebanese, held under UN auspices at Nakoura in southern Lebanon. Israel suspended its participation last Monday, declaring that there was "nothing left to talk about."

Mr Brian Urquhart, the UN under secretary general, is due here today in search of an agreed solution to the impasse over the redeployment of Unifil.

Zimbabwe election will not be fair, says opposition

BY TONY HAWKINS IN HARARE

ALLEGATIONS that Zimbabwe's first post-independence elections due to be held in March or April this year will not be "free and fair" have been fuelled by opposition parties following Mr Joshua Nkomo's enforced cancellation of an electioneering tour of the vital Masvingo province.

Mr Nkomo, leader of the Minority Zanu Party which has 19 seats in the 100-member Zimbabwe House of Assembly, denounced demonstrations by an estimated 30,000 supporters of Prime Minister Robert Mugabe's ruling Zanu-PF Party in Masvingo last week. Mr Nkomo's car was stoned and he says, shots were fired by the Zanu-PF demonstrators.

At the weekend, Mr Nkomo said he had cancelled his campaign in the province on the advice of the police who had warned him that they could not guarantee his safety.

While this is the first such incident since Mr Mugabe said at New Year that he hoped to

hold the elections before the April 19 anniversary of independence, it is a repetition of demonstrations last year by government supporters against the minority opposition groups.

In June, the Government imposed a three-month-long ban on Zanu militants in two provinces following violent demonstrations against the party by Zanu-PF militants.

Speaking at the weekend, Mr Nkomo said it was plain that the elections would not be free and fair since "no campaigning is being allowed." Political observers here believe it is going to be extremely difficult for Zanu to campaign outside Masvingo, which is Mr Nkomo's home ground.

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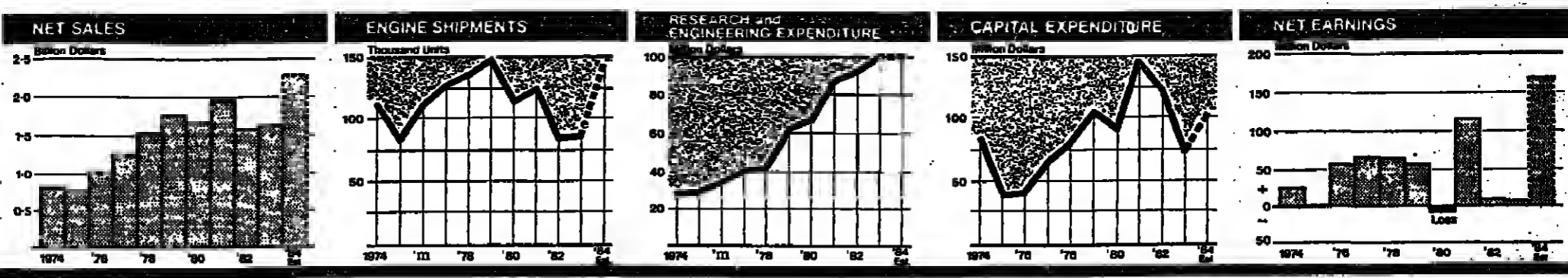
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Growing U.S. trade deficit prompts import tax study

The Electricity Council, England and Wales C1585

THE MANAGEMENT PAGE

EDITED BY CHRISTOPHER LORENZ



Cummins' long-term view comes good

Ian Rodger assesses the outcome of the U.S. diesel engine maker's financial gamble on its core business

VIRTUE is rarely rewarded quickly, if at all, in the heavy manufacturing industries these days. But it now looks as if Cummins Engine, the leading U.S. diesel engine maker, is going to see a bigger and faster payback than expected from its brave commitment in the past few years to long-term development.

The acquisition of International Harvester's farm equipment business by its competitor, J. I. Case, last year provides an unexpected double boost to Cummins.

It improves the survival prospects of IH whose heavy trucks are the most important single market for Cummins engines. It will help a new \$350m Case-Cummins joint engine venture, Consolidated Diesel Co., become profitable much faster than planned. This is because Case will gradually shift the sourcing of engines for IH farm equipment to CDC.

No doubt, Cummins was lucky that the Case-IH deal happened. Only a few months earlier, Tenneco, Case's parent company, was talking of abandoning the depressed farm equipment industry, a move that would have had a very negative impact on CDC.

But Cummins officials argue that they have worked hard for their luck, and they believe that if it had not come in one way, it would have come in another. And they are probably right. Starting in 1976, the company adopted a bold strategy, deciding to give up efforts to diversify and to concentrate instead on its engine business, even though the growth prospects there were very modest and the competitive conditions daunting.

Cummins' main U.S. rivals are General Motors and Caterpillar Tractor, while in Europe it is up against Daimler-Benz, Volvo and Fiat's Iveco subsidiary, all of which make their own engines rather than buy them in.

But the directors figured they could continue to achieve satisfactory growth and profits from engines, in spite of the apparent obstacles. They concluded, rightly as it turned out, that the key characteristics of the 1980s would be depressed markets for the main diesel engine buyers, the makers of vehicles and various types of industrial equipment, and, consequently, serious overcapacity in the engine sector itself. And they reasoned that the ways to succeed in that kind of environment were to have the most up-to-date engines and to produce them more economically than their competitors.

Since 1977, Cummins has invested considerable management effort and about \$500m, more than double its net worth, in achieving those goals. At various times along the way, especially as the company's markets plunged, strong doubts were expressed about the wisdom of its ambitious spending programme.

The Cummins share price slumped from a peak of \$39 in 1981 to a low of \$26 in 1982, but the directors decided to hang on.

"If you're in the capital goods business, you do what you have to do," Henry Schacht, Cummins' chairman, says firmly now that the squeeze on the company's resources is over.

Cummins' net earnings bounced back to record levels last year after the company only barely managed to break even in 1983. By the end of the third quarter of 1984, it had piled up earnings of \$149.8m, more than it had ever made before in a full year and the share price has risen to a new peak of over \$81.50.

Schacht says the results reflect mainly the effect of the company's cost cutting since volumes, while very strong, have not reached exceptional levels. But he also acknowledges the impact of a strong recovery in the U.S. heavy truck market. "If someone was looking for a way to help us recover, he really hit the bullseye."

The real excitement has been in the engine development programme. Cummins set out in 1976 to revamp its entire product line and to expand its range downwards with the development of a new series of 10-litre engines with power from 220 to 330 horsepower.

The idea was to incorporate improvements in diesel technology, such as turbocharging, in engine design so that greater fuel efficiency and economy would be achieved. For example, the 10-litre matches the power of some versions of the company's old workhorse 14-litre engine, but it weighs a third less and consumes much less fuel.

The 14-litre itself, which dated from the 1940s, was to be replaced, but the company decided last year after completing the development of a new version, that it could achieve nearly the same results by modifications to the existing engines, and so shelved the new one.

The 10-litre project was aimed largely at protecting the bottom end of the 14 litre's heavy truck market while giving the company an entry into the bus and coach area.

Cummins also hoped it would sell well in European markets. Cummins had expanded into Europe in the 1950s expecting to benefit from the same trends in freight transport—a shift from rail to road and the growing popularity of huge juggernauts—that it was enjoying in the U.S.

Those trends were indeed present in Europe, but European truck users never felt a need for Cummins' huge 14-litre engine, and the company has never made much headway there. It hoped the 10-litre would change that and, since its introduction in 1982, the

Investing patiently

THE HAPPY outcome of the Case-Cummins venture will come as no surprise to those familiar with Cummins. The company's initial success came from investing patiently for the long term.

It was set up in 1919 in the sleepy little town of Columbus, Indiana, when the Irwin family, which dominated the town, backed a local inventor, Clessie Cummins, in his enthusiasm for diesel engines.

Cummins tried everything to promote the qualities of the diesel, once even entering the Indianapolis 500 car race in which he was placed third because he never needed to refuel. But gasoline was plentiful and inexpensive in those days and no one was interested in fuel economy. The company suffered continuous losses for 20 years.

However, virtue paid off with the outbreak of war. The U.S. military was very interested in the simplicity, durability and fuel economy of the diesel, and Cummins' fortunes soared. More important, this popularity carried over into the post-war period.

The next 20 years were glorious for Cummins as the interstate highway system was built and freight movement shifted massively from the railways to the roads. Moreover, the company had very little competition.

"Truck manufacturers never saw the diesel as very interesting, so we won by default," Mike Howell, vice president,

corporate strategy, says. The company also moved confidently round the world in this period, setting up a major manufacturing base in Britain and joint ventures in Mexico, Brazil and Japan.

By the late 1960s, the rapid growth phase of the U.S. heavy truck market was coming to an end. Also, Cummins was not finding the same easy success abroad that it had enjoyed at home. The diversifications were not successful, and the amount of management time spent on them soon began to hurt the core business. Most were sold, and the company is still wary about trying again.

"Our record is not very good," Schacht says. "If we do diversify, it will be into related things."

Cummins had long wanted to start making engines of this size, but was stopped by the difficulty of penetrating the already overcrowded markets for them. Deutz of West Germany and Perkins of Britain, part of the Massey-Ferguson farm equipment group, have major shares and worldwide service networks, but dozens of other companies that make engines mainly for their own use also sell some in the open market. Ominously, a few Japanese producers, such as Isuzu and Nissan are gaining ground.

Cummins knew it would take a long time for it to build up a useful share in this sector. Effectively, that meant it could not afford to enter without a significant volume customer lined up in advance. Company officials tried for years to convince various manufacturers that they would be better off abandoning their own engine production and buying from a specialist. Suddenly, to their surprise, Case agreed, and even though it was heavily committed to its existing development programmes, Cummins knew it could not turn down the opportunity.

The two soon decided on the

CDC joint venture and a range of engines that would suit both Case's needs and Cummins' ambitions. The main objective was to be able to produce the engines as inexpensively as possible. This was done partly by reducing the number of parts in the engines and partly by automating production. More audaciously, the two went for economies of scale.

The first of the engines went into production late in 1983, but so far they have not attracted any large customers other than Case. In fairness, Cummins officials did not expect a rapid build-up in demand. They knew that producers of compressors, excavators, fork lift trucks and other equipment would look long and hard before switching from proven suppliers. They also hoped to convince delivery van operators in the U.S. to switch from petrol engines, but that, too, would take a long time to bring about.

And therein lies the importance of the Case-IH deal. IH sells about 40,000 tractors and combine harvesters a year. Now almost all of its engines come from other IH plants. But Case has not bought any of the IH engine plants, and while it has not said so publicly, there is no doubt that it is going to put CDC engines into the IH farm equipment as quickly as it can.

CDC is set up as a cost sharing partnership, so the main benefit to Cummins of the increased volume will be a more rapid reduction in unit costs than expected. Joe Philippi, an analyst with New York stockbroker E. F. Hutton, estimates that if CDC were a profit centre, the impact of the IH volume would be to bring forward its break-even point by about a year to the second half of 1986.

That's the sort of good fortune that would make a company think it could pause and reap some rewards, but Cummins is already embarked on a fresh challenge—beating the Japanese.

The Japanese are setting new standards for this industry and, darn it all, we are going to match them," says Schacht.

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Ford's UK tractor unit to boost investment

By Andrew Gowers

FORD Motor Company's British tractor division hopes to step up investment aimed at boosting revenue and cutting manufacturing costs this year, to improve agricultural equipment sales profitability.

Mr Geoff Tiplady, executive director of Ford's tractor operations, said the move, which would involve changes in Ford's worldwide system for sourcing tractor components and could mean the creation of new jobs in Britain, was the subject of "delicate negotiations" within the group. He hoped to be able to make an announcement within the next three months.

Ford has invested more than £80m in new manufacturing facilities including the introduction of robots at its UK tractor base in Basildon, Essex, since 1979. Mr Tiplady said the company was investing at a rate of about £10m a year.

According to figures from the Agricultural Engineers' Association, UK tractor registrations last year totalled 25,313 units, 10.6 per cent below their level in 1983.

Mr Tiplady said Ford's UK market share, while still the largest, dropped nearly three percentage points to 23.3 per cent. He attributed the fall in the first half to the company's efforts to reduce price discounting during that period. He declined to predict tractor sales this year, but said they would undoubtedly fall off sharply in April as farmers react to a change in tax allowances for capital investment.

Production at Basildon was 28.5 per cent up last year, Mr Tiplady said, reflecting the buoyancy of UK exports to countries such as the U.S., Pakistan and Turkey. Exports of tractors and component parts totalled almost 53,000 units, 37.7 per cent above 1983.

Faced with the likely stagnation of world tractor sales this year, Ford's strategy is to secure sales by seeking overseas joint ventures, to try to sell more engines and components and to look for efficiencies in manufacturing.

The main uncertainty in the world tractor market concerns Tenneco's plans to merge the operations of its subsidiary J.I. Case and International Harvester's farm machinery interests, which it agreed to take over in late November.

Oil groups plan biggest onshore oil search

BY DOMINIC LAWSON

OIL COMPANIES are planning the busiest year so far in their search for oil in Britain. More than 100 wells are likely to be drilled on shore, according to Petroleum Information, the research organisation.

Last year the industry drilled a record 45 wells against a planned total of 87 wells. Petroleum Information said the drilling programme was reduced because of "planning hurdles erected by environmental lobby groups."

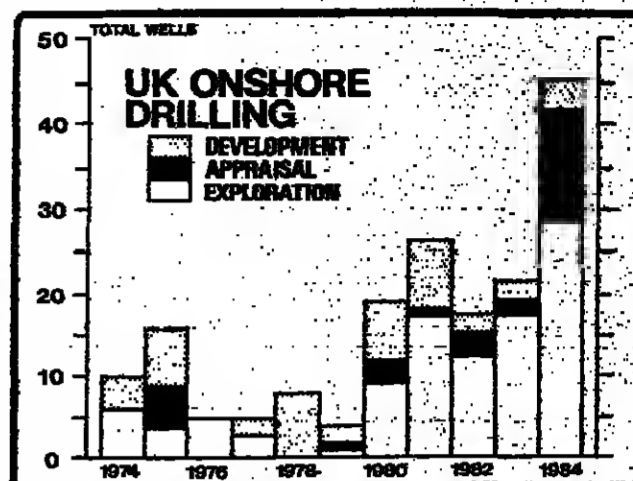
The surge in drilling predicted this year is likely to cause further friction between the oil industry and environmental groups.

British Petroleum (BP) is once again set to be the most active onshore driller with up to 52 wells planned this year. Of those, 35 will be exploration wells and 17 development wells.

BP said recently that it planned to drill about 60 onshore wells in the UK every year for the next five years. Most of those will be in the East Midlands.

After BP, the most active company this year is expected to be Carless Capel & Leonard, the UK exploration company, which plans 20 wells, 10 of which will be part of the Humble Grove development in Hampshire.

Conoco, the U.S. company that has had a run of exploration suc-



cesses in central southern England, plans to drill seven wells in that area this year, according to Petroleum Information.

Drilling in Scotland is planned by Anvil Petroleum and Premier Consolidated Oilfields, and Anvil may also explore for oil and gas in Ulster.

Last year's drilling in the UK produced four oil finds and one gas discovery from a total of 24 exploration wells, a success rate of more than one in six. That compares well with oil exploration success rates any-

where in the world. However, it was a decline from 1983's success rate of eight discoveries from only 17 exploration wells.

The Government is soon to announce the first formal onshore licensing round. Previously, onshore oil and gas licences have been awarded on an ad hoc basis. The Government is expected to open up the entire land mass of the UK for offers to explore from the oil industry. However, most of the areas containing best prospects for discoveries are already under licence.

Providence deal expected soon

BY CHARLES BATCHELOR

PROVIDENCE Capital Group, the British life insurance arm of the U.S.-based Providence Capital, is expected to change hands for between £40m and £55m within the next few weeks.

Between 10 and 15 banks, insurance companies and other financial services groups from Britain, the U.S., France and the Far East are at present studying a sale prospectus drawn up by S. G. Warburg, the merchant bank.

The Providence sale, first announced by Warburgs in early December, is the latest in a series of upheavals in the UK life assurance sector. Hambro Life Assurance, Britain's largest unit-linked life company, agreed last month to accept a £884m takeover bid from BAT Industries, the tobacco-based conglomerate.

There has also been speculation that ITC, the troubled U.S. group, might put Abbey Life Assurance, the UK company created by Mr Mark Weinberg, up for sale.

"Providence is a more manageable size," Warburgs said yesterday. "The UK life sector is still one in which a number of people are interested despite the ending of tax reliefs for life assurance premiums."

Warburgs has based its projection of the likely sale price of Providence on a value twice the company's net value according to generally accepted U.S. accounting principles — the usual formula in such cases, it said.

It has also taken as a basis for its calculations the sale last year of Cannon Assurance by the Cascade group of Canada to Lincoln National of the U.S. for just over £40m.

Cannon is similar in size to Providence.

Warburgs will shortly send details of an actuarial valuation of Providence Capital Group being carried out by Tillinghast, Nelson and Warren, consulting actuaries, to its short-list of potential buyers. This will include a series of values based on a range of interest rate levels.

Providence has a UK sales force of 570 working from 33 branch offices which could be used to promote other insurance products. It made an after-tax profit of £1.8m on premium income of £34.2m in the year to December 31 1983.

Providence Capital Group was set up in 1988 as the life assurance arm of the Slater-Walker conglomerate. Since then it has had a series of owners.

This unchanging place will not leave you unchanged.

Ronda is haunted. A small city, an hour's drive from the Costa del Sol, it sits atop a soaring rock above a gentle, fertile valley. Its principal business is the making of legends.

It was in Ronda that the true tragedy of Carmen took place, long before Bizet heard of it, and made it into

an opera set in Seville.

It was here, at the cliff where the park ends, that an incident took place that inspired Hemingway to write "For Whom the Bell Tolls".

And it was here that the classic art of bullfighting on foot with cape and sword was invented by Francisco

Romero more than two centuries ago.

The mystery of this art is enshrined in the bull ring of Ronda, one of the oldest in Spain. Ronda is haunted, and you will feel the brush of the spirits' wings at the Moorish Baths and on the ancient bridge that spans a dizzying gorge.

Inside the bridge, in an arched stone tower that once was a prison, you can sit in cool peace and enjoy the famous ham of the town, washed down with a light red wine, but you will still sense the ghosts of the legend makers.

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TECHNOLOGY

IN FLIGHT TELEPHONES FALL FOUL OF U.S. COMMUNICATIONS AUTHORITY

Airborne phone calls face cut off

BY GEOFFREY CHARLISH

TELEPHONING from airlines, which took a step backwards before Christmas, when Illinois company Airfone fell foul of the Federal Communications Commission (FCC), may not fare too much better in Europe.

The FCC view is that the Airfone service, carried experimentally by air airlines in 22 U.S. aircraft during the Autumn of 1984, is something of a luxury, likely to be used by very few passengers.

The immediate problem on both sides of the Atlantic is frequency allocation. All the users of radio frequencies from broadcasters to police forces, so that the FCC in the U.S. and the equivalent regulatory bodies in Europe are wary of making allocations that might seem unnecessary.

Airfone is using frequencies in the 900 MHz region and although the company's licence has been extended for a year,

The immediate problem on both sides of the Atlantic is frequency allocation.

the FCC's present position is that some or all of the frequencies will eventually go to TV and ground mobile radio.

But company secretary Sandra Goeken (whose father John Goeken heads Airfone) said the company will continue to gather data from the planes already equipped. "Telephoning from planes is not a luxury," she says, adding that the company will continue to press the FCC to change its mind.



According to Airfone, the service has been highly successful and there has been some adverse business community reaction to the FCC announcement. The company claims for example, that of every 100 passengers carried, over 20 use the service. At Northwest Orient, which has seven aircraft equipped, 600 calls a day are being made, it is claimed.

Airfone says that on average there are 1m passengers aloft over the U.S.

The U.S. airlines apparently see in-flight phones as a good way of selling seats and in the UK, British Airways says it has the idea under active investigation.

In Britain, an International Aeronautical (IAL) spokesman revealed last week that Airfone held discussions with the UK company about 18 months ago. At the time Airfone was par-

ticularly interested in setting up in Canada. There would have been a joint venture, but the project was abandoned, due to regulatory problems. In Europe, it was felt there would be little chance of the national regulatory bodies agreeing on frequency allocations.

As with many new communications services, initial doubts about utilisation will probably evaporate eventually. Most new systems—telephones, radio broadcasting, television—were initially seen as novelties, only to become necessities within a decade or two.

It was thought that the capacity of the first submarine cable (only 36 channels, in 1950) would take several decades to be filled. Now such cables criss-cross the world's oceans carrying many thousands of conversations.

If the service proves useful and the price is right, it will

be bought. Airfone charges \$7.5/min for the first three minutes, \$1.75/min thereafter and the pricing is claimed to be realistic, not introductory.

What is the European situation? An important difference is that the distances involved are shorter. No-one is airborne for more than two hours or so, whereas six or seven hours is commonplace in the U.S.

In Europe therefore, a businessman might opt to wait till he gets to the destination airport and use an ordinary telephone there. On the other hand, in-flight business discussions are common enough and people are known to have ideas in-flight—or will simply remember things they should have done before take-off.

But the opposite view is that a business passenger looks forward to escaping from the telephone for a couple of hours for paperwork or reading. He might be annoyed by someone next to

him chattering on the phone.

The U.S. system uses 36 ground stations, but the aircraft is not handed off from one area to another as in the ground mobile cellular systems now coming into service in the U.S. and UK. It is simply radio-linked to the terrestrial phone network via the nearest ground station. Calls can only be initiated from the aircraft, not from the ground.

In Europe such a system would involve a number of international bodies. The International Air Transport Association (IATA) for example, has not yet formally considered the matter, but a spokesman said the association will monitor U.S. developments—particularly any move to extend coverage in the Atlantic or Pacific (which calls either for a satellite or station-keeping ships strung across the ocean).

INMARSAT, the international marine satellite body, has revealed that it will be changing

The U.S. system uses 36 ground stations which link into the terrestrial phone network.

Its constitution in 1985 to include aeronautical communications. Although operational radio is the first priority, passenger communications is not ruled out.

INMARSAT has been talking to the airlines and is conducting, for example, a study into the equipment and aerials needed on aircraft. It also plans to put up further satellites in 1988 which will embrace aeronautical as well as marine frequencies. Contracts will be placed in the second quarter of 1985, worth "several hundred million dollars."

OFFSHORE

How dental fillings protect oil platforms

COMPANIES IN the offshore oil and gas industry could benefit from work on dental materials at a laboratory run by the Department of Trade and Industry.

The Laboratory of the Government Chemist in London has developed a coating material for offshore structures based on zinc polycarboxylate — the same substance used in many dental fillings. The laboratory has built up a reputation in the world of dentistry and some of its products in this area are sold under licence by companies around the world.

Government scientists realised that the properties of the dental substance could be attractive to engineers who want to protect from corrosion structures such as oil rigs.

The zinc polycarboxylate can be turned into a water-based coating that technical workers can spray onto the steel framework of the offshore hardware. The coating protects the structure by galvanisation.

Scientists have tested the coating, called Zincathion, on rigs owned by the Ministry of Defence in Portsmouth Harbour.

In further work, staff in the materials group of the Laboratory of the Government Chemist have produced another material, an ionic polymer mixed with water, that could be used in the coating industry.

Canning companies require materials of this sort to act as a coating inside receptacles used for food and other perishable substances. Conventional coatings are often based on organic solvents. In applying these coatings, workers may suffer a risk from poisonous fumes.

The developments at the government laboratory come after two years of work on water-based coatings. The laboratory says it is discussing licensing deals under which private ventures could take a stake in further development of the materials.

COMPUTING

Cobol for personal micros

A FAST, inexpensive Cobol for the IBM PC is one of the first products of collaboration between Digital Research of the U.S., the company which pioneered operating systems for the first personal computers, and Microfocus, the leading UK microcomputer software house. The product DR Level II Cobol is a compiler (a computer program which converts Cobol instructions into machine language) certified by the U.S. Federal Software Testing Centre to meet the full ANSI specifications for high level compilers. It costs £595, but Digital Research claims that it gives the

performance of compilers costing £2,000 and more.

Software developers will pay no licence fee for applications developed with the compiler, which should reduce their distribution costs.

Tested using the NCR benchmark, the new Digital Research Cobol was timed at 13.4 seconds compared with Micro-soft V1.07 which took 116 seconds.

The new product is important because the vast majority of business software is still written in Cobol. More from Digital Research on 0635 35304.

Training

Pilot testing

THE Ministry of Defence is installing a computer-based system for pilot selection at its Biggin Hill pilot aptitude testing centre.

Based on 25 torch micro-computers, each potential pilot is given a floppy disk which takes the operator through the various tests. As well as communicating via the keyboard, the workstation can be controlled by a joystick and foot pedal.

The Biggin Hill facility is used for screening many candidates in the armed services both at home and overseas including the Royal Navy as well as university cadetships and flying scholarships.

Report

Electronic mail

FROST AND SULLIVAN, the U.S.-based high technology market research organisation is to hold a seminar on electronic mail at the Connaught Rooms, in London on April 25 and 26.

The principal speaker will be Mr Donald Van Doren who is president of Vanguard Communications, a New Jersey company specialising in emerging communications technologies like local networking and long distance communications.

The seminar fee will be £435 and more information can be obtained from Cindy Barnes on 01-486 0334.

METALS RECOVERY

The making of plasma

BY ELAINE WILLIAMS

THIS YEAR could well be the make or break time for gas plasma technology in the metal recovery business. SKF in Sweden hopes to have its first plant in full operation in 1985 and Tetronics, a small British company hopes to see years of research finally pay off.

Plasma is a process which researchers have applicable mainly to the metals and metals recovery business. But these industries have been suffering from stagnant or falling prices and reduced demand which has hindered the wider adoption of plasma technology.

Companies have flirted with plasma processes since the 1930s. Thus, a West German chemical company was by 1940 producing 50,000 tonnes of acetone by using plasma jets. There are three companies most actively involved with plasma technology today. These are Tetronics, a small UK project research company, Westinghouse in the U.S. and SKF, the Swedish steel and bearing maker.

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SKF, as part of a consortium, last year completed the construction of a new plant at Landskrona in southern Sweden for the recovery of metals from baghouse dust produced during steel making. Though inaugurated last September, the plant, run by a new company called Scandust, has yet to be operated on a continuous basis. Scandust should eventually process 50,000 tonnes of waste a year.

Tetronics, by contrast, has a 10,000 tonne/year capacity plant working in the U.S. It was built in "Georgian" near Atlanta, Georgia, to recover platinum from spent car catalysts. The U.S. has a ready supply of such catalysts because of laws which control the emission of toxic car exhaust gases. This plant has been operating commercially since August 1983.

The British company has also carried out studies on the use of plasma technology for many companies in Japan and the UK with British Steel amongst its clients. It is now hoping to extend the applications of plasma technology in welding large sections of titanium, improving part of a steel making process and traditional glass making. Tetronics was supported in its early days by Foster Wheeler.

Tetronics builds smaller plants than SKF and sees applications in the 1MW to 10MW range. This covers, for example, the refining of metals, cutting and welding, small scale coal gasification applications, smelting and melting metal production and glass and cement production.

SKF and Westinghouse use the same techniques to produce a gas plasma because the Swedish company originally licensed its technology from Westinghouse. The U.S. company developed its process to simulate conditions that a space

craft would experience on re-entry into the earth's atmosphere.

In this system a gas is ionised as it passes through the space between two concentric copper electrodes. Ionisation strips the gas of electrons giving the gas a positive electric charge. Also most of the energy applied to the electrodes is passed to the gas stream in the form of heat.

The gas stream can reach temperatures of between 3,000 and 10,000 deg C and is powerful enough to punch a hole in mild steel within seconds. In the Scandust plant, the gas stream acts upon the dust in the furnace to reduce it to pure metals, in this case mainly zinc. The excess heat produced by the process is to be fed into Landskrona's district heating system.

Tetronics has taken a different approach. It uses one electrode through which the gas passes while the second electrode is at the base of the furnace. This means that the gas is ionised within the reaction zone of the furnace. It uses a fraction of the gas needed in the SKF system, operates at lower temperatures and does not generate so much waste heat. Mr Roger Gurr, the company's project manager said that this allowed smaller furnaces and electrodes with greater efficiencies to be produced.

Both approaches to plasma technology lead to smaller furnaces and can recycle metals from waste untreatable by more conventional systems. The question of overall economics, however, still remains.

In Sweden, the Scandust plant will play a social role by providing new jobs in an area of high unemployment and supplies the district heating system but few countries are able to justify recovery plants on such grounds.

PERSONAL COMPUTING

Engineering portable

A TRANSPORTABLE computer with disk drive, printer and operating system built in was launched late last week by Hewlett Packard, the U.S.-based electronics group.

What makes the machine stand out from other "luggable" computers on the market (it weighs 25 pounds) is the fact that the operating system, embedded within the machine on a silicon chip, is Unix, friendliest of all microcomputer operating software.

The machine is aimed at scientists and engineers, among whom there is already a strong following for Unix. Unix was written over a decade ago in Bell Laboratories as a language for microcomputers which made it simple for programmers (experienced programmers, that is, not beginners or laymen) to develop new software. It is a language rich in utilities to help the programmer in his or her work.

As such, it attained a strong cult following in the universities and colleges among advanced

programmers. But it needed powerful resources—high speed computing power and lots of memory.

With the development of 16 and 32 bit microprocessors such as the MC 68000 on which the new HP machine is based, that power and memory capacity became available in personal computers.

Although HP has been wooing the business world with a series of quality desk top and portable machines, its strength still lies in the scientific and engineering areas where its reputation for quality is unequalled.

The new machine uses an HP version of Unix called HP UX and it provides sophisticated facilities such as graphics and windowing—where more than one program can be seen running on the screen at once. It features a built in "Think-jot" printer and a 3.5 inch double sided disk drive with 710 kilobytes of memory on each side. It has a nine inch electroluminescent screen and will sell in the UK at £3,450.

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GOULD Electronics

THE ARTS

Rigoletto/Coliseum

Max Loppert

The English National Opera's biggest hit for many seasons returned to the repertoire on Friday. The performance found the company in superb form. Every corner of the stage was alive with precisely weighed, never over-enthusiastic ensemble participation; all the smaller roles were immaculately placed in the picture, and if one singles out the trio of hooded couriers of Terry Jenkins, Malcolm Rivers, and Mark Richardson, it is only for the sheer bravura of their impersonations.

Such a red-blooded, nervy, acutely responsive company presentation argues the strongest possible case for Jonathan Miller's updating of the work to the New York Lower East Side, time the early 1950s. One may continue to have, as I do, misgivings about Verdi's burning denunciation of state police licensed to easy abuse goes missing when all the characters repose on the shady side of the street, the character of the Duke becomes less, not more, credible in the translation. Yet the poetic atmosphere of the show, delivered in tones of harshly muted melancholy, overpowered cool critical observation: a *Rigoletto* as truthfully characterised and musically faithful as this, with its not of relationships drawn painfully out, can hardly have gone badly wrong in Verdi's essentials.

All the principals are experienced—John Rawnley in the title role and Arthur Davies (Duke) in the role of the Duke, while Valerie Masterson, new to this production in London, is

happily recalled from the previous ENO *Rigoletto*. Baritone and tenor were both at their considerable best on Friday (Mr Davies' way with his music has, indeed, gained enormously in fluency, finesse, and appreciation of detail). Though Miss Masterson, heard here in brighter, clearer, bolder voice than for what seems like long ages, may not command the gawky youthful radiance, the doe-like innocence of Muriel's other Gilda, the economical elegance of her stage presence and the pinpoint control of her singing made up the difference. Jean Rigby's lustro, lissome Maddalena provides, in Act 4, an ideal female contrast.

John Mauceri, the young American who in the ENO's *Force of Destiny* and *Butterfly* has already given notice of outstanding abilities in Italian opera, takes over direction of the revival. In an interesting programme note the conductor elucidates his concern for exactitude in matters of Verdi tempo marking. Friday's performance bore out the point of his labours—some passages may have struck the ear as unusually moderate in pace, but the whole work had the "consecutive" quality, the unbroken vision of a natural Verdian.

Mr Mauceri is a "singing" conductor, at one with the vocal impulses, an inspirer of glowing orchestral accompaniment. Miller has allowed an incursion of the original Italian into James Fenton's translation in a way that seems entirely natural to place and situation; now, perhaps, he could set about correcting the many misaccents of English that remain.

Radu Lupu/Elizabeth Hall

Dominic Gill

The last time I heard Radu Lupu play, two years ago, I called him a marvellous, madly mad, unpredictable pianist. From time to time, at his best, he has given some of the finest Schubert and Brahms performances that I can remember. At other times he can play so dutifully, or more important, with so little sense of engagement—that one could swear another artist entirely had replaced him at the keyboard.

I found his recital of Beethoven and Schumann on Friday evening at once, on the surface, often extremely beautiful and musically below that surface, disappointingly self-absorbed, unengaging. The tensions in the first movement of his op. 109, could have been put down to nerves; but they persisted. A tendency to clip the triplets of the prestissimo's main motif, a crucial dilution of the authentic effect, was merely an awkward misreading; but the whole manner of the finale was mis-tuned, dreamily withdrawn, full of compasses, unnecessary, irrelevant, emphases, little pedantic rushes and lingerings.

I intensely disliked the somewhat late-19th-century desynchronisation of hands in the fourth variation. There were, inevitably, for Lupu a serious and thinking artist, more than a few intriguing isolated insights; but they did not add up to a view of Beethoven's most mysterious and elusive sonata that was especially original or convincing.

Lupu's account of Beethoven's op. 110 was similarly "sensitive" and "interesting"—and similarly, through lack of any real conviction and originality, emotionally lame. It was significant that he used the soft pedal liberally in the opening pages, which nullified (in the way that he used it) the vital carrying power of the cantabile melody: a veneer of prettiness to please

the ear, but which contradicted the music. In sum, another performance more self-absorbed than Beethoven-absorbed.

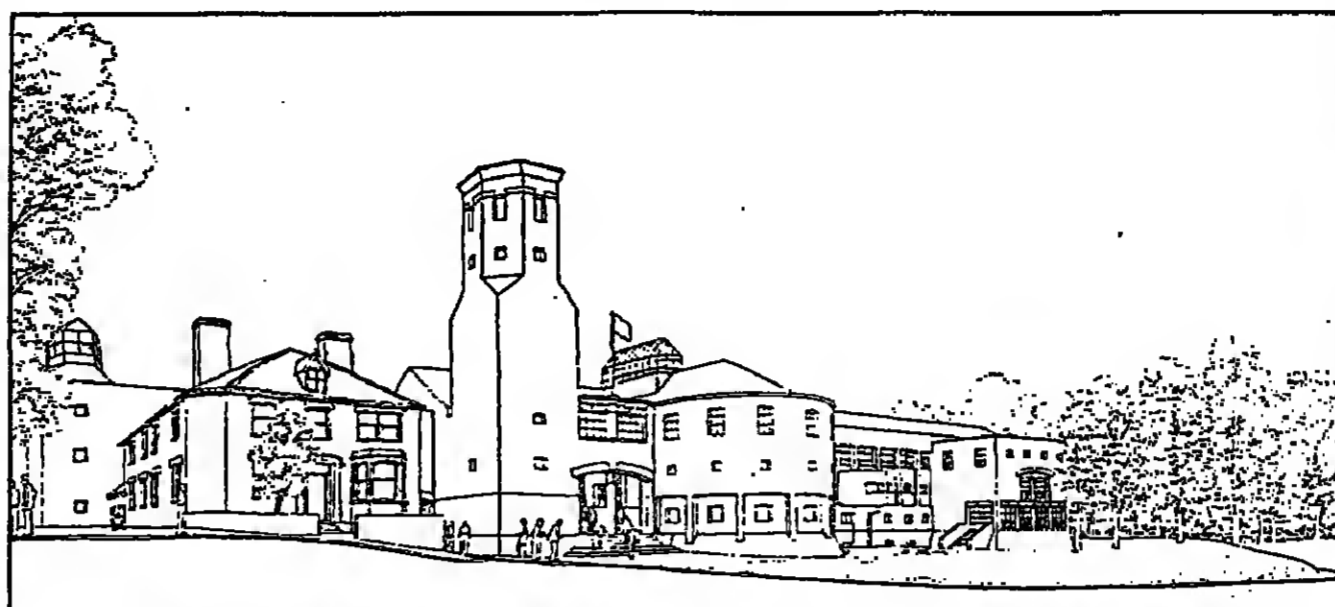
That his reading of Schumann's C major Fantasy after the interval seemed altogether too whimsical and lightweight is a matter of personal taste; others perhaps may have found it a revelation. For neither since nor abandon. The opening pages may trace of the oppositionist and jostling, tonic-dominant which are the composer's own key labels for the music—in their place a kind of delicate, febrile wistfulness, that had neither since nor abandon. The music grew more impassioned as it progressed; but that very attempt to "develop" the drama instead of plunging into it from the start was surely a misconception. Lupu didn't cheat rhythmically, as many pianists do, to the second movement's fiendish coda; but he pulled its punches by playing it *mezzoforte*—which in a Schumannian context is a misconception. Lupu didn't cheat rhythmically, as many pianists do, to the second movement's fiendish coda; but he pulled its punches by playing it *mezzoforte*—which in a Schumannian context is a misconception.

First prize for First House

First House, a quartet of young jazz musicians from England, were the winners of the third International Jazz Federation European Jazz Competition at Leverkusen, West Germany. The competition attracted 125 entries from 22 countries. An international jury listened to all the tapes and selected six bands to perform in the finalists' concert, following which the jury awarded the title "European Young Jazz Artists 1984" to First House. The quartet also received a cash prize of DM 5,000 and a commemorative plaque. The prizes were sponsored by the Leverkusener Stadt AGFA.

Architecture

Colin Amery



Competition winning design by Jameson, Lerner and Reid for post-modern public offices for Epping District Council

Enriching Epping's tradition

Architectural competitions have come in for a great deal of criticism during the last year. When Mr Michael Heseltine was Secretary of State for the Environment he was determined to increase the number of architectural competitions and he even had a go at speeding up the planning process for developers who selected the designers of their new buildings by competition. Luckily for the democratic planning process, tedious though it often is, his precipitate Special Development Orders did not flourish.

What he did achieve was an atmosphere that encourages the idea of more competitions. Today we probably would not go all the way with Ruskin who thought that aarchy and competition were the "laws of death" but it has to be admitted that the recent National Gallery competition bred only suffering and disruption. My sympathies are entirely with the brave Peter Ahrends who won the competition and was then beaten into an impossible position by the uncertainties of his clients. No architect can adapt a winning design three times without dreadful compromise—the only honourable thing for the National Gallery is to start all over again.

Some competitions are better than others. The recent one for a new civic offices for

the Epping district council has produced a good result and seems to have been managed immaculately. The winning design by Ross Jameson, Ralph Lerner and Richard Reid is the one that interests me most but the selected six entries for the competition's second stage are all of some merit.

Epping is a rare survival. It still seems like a pleasant country market town—saved from suburbanisation by the protection of Epping Forest between it and London's north eastern fringes. The district council wants some new offices on a site at the northern end of the High Street adjoining the large green. It is an important site, in a conservation area—and has to be seen as the key link between the houses on the High Street and the slightly more relaxed village green feeling of the North end of the town. The green slopes away up towards the slender war memorial and some Georgian houses. The scale is domestic. Opposite the site for the projected civic offices is an estate of well-built neo-Georgian houses that have been carefully designed with steeply pitched roof and dormers.

The good thing about the winning design is that it clearly understands its context—something far too many new premises ignore. Epping is a linear

townscape that has grown up on the basis of medieval plots. The houses, shops and inns have gradually reflected their times but there is nothing that is over-scaled or too horrendous out of character. There are however two very prominent and attractive landmarks. One is the tall brick water tower and the other is the remarkable church of St. John designed by Bodley and Garner and built between 1890 and 1909.

The strongest feature of the church is a great battlemented tower, four-square and powerfully built of stone to the east of the main body of the church. The Jameson, Lerner and Reid design for the new civic offices also has a tower, massive and square at the base and rising up to an octagonal top. This will be Epping's third tower and its looks as though it will strike the right note of civic pride without pomposity.

What a relief it is that it is no longer necessary to look at a tower and ask what is it for?

British architects, especially when it comes to public buildings have always liked turrets, domes, finials, spires and encrustations of all kinds. Consider for example the greatest public view in London from St. James's Park bridge. Whitehall appears as towered as the Kremlin. The winning

architects for Epping have understood this enthusiasm. The whole ensemble is conceived as an extension and enrichment of the English vernacular tradition. I like those words "enrichment" because that is exactly what the heart is aching for in new architecture. We have had enough functionalism and dullness. Modern architects have too often elevated monotony into a rarified art form—understood by few and liked by less.

Epping is encouraging. The main facade of the offices will be a mixture of brick and colour-washed render. Care will be needed to ensure that the roof material is as rich as the rest of the palette. The detail of the brick tower will have to be executed with skill and perhaps a little more enrichment will be needed than is shown on the preliminary drawing.

Essex towns have a long tradition of modestly scaled and architecturally lively public buildings from the 15th century Guildhall at Thaxted to the Edwardian splendours of the town hall at Colchester by Sir John Belcher. This proposed winning design for Epping is that tradition and I hope, that unlike so many other recent competition winners, it will actually be built.

A Cry with Sewn Lips/Theatre Upstairs

Michael Coveney

This remarkable, moving and scrupulously well performed play documents the persecution and death to prison of the Iranian poet Farukhi Yazdi. Its 13 scenes cover the period from 1908 to 1939. In the second of them, Farukhi is denounced by a mullah for a poem critical of the feudal governor. Held down by palace guards, Farukhi is thrown before the offended Zeigham who, rising from an extravagant massage, stiches his lips together.

This is the first of the humiliations and atrocities suffered by the poet, whose tale is recounted by the author and director Ira Jannatie Aiaie, himself a former prisoner of the Shah. His company of Iranian exiles, the Mazdak Theatre Group, is one of the most interesting and talented to hit London in some time. They perform the play in Farsi, but an excellent synopsis is provided and the lights sensibly raised between scenes so you

can read it. In addition, of course, it is pleasant to hear this beautiful language of liquid assonance and gliding stops; among the few good performances caught on the wine are "Communist" and "Hitler". The first is used to denounce Farukhi in Parliament where in the mid-1920s he sits as one of two Opposition members. The scene ends with a violent attack upon a person passionately observed by the Persian "Speaker".

When I visited Iran ten years ago, the olive theatre seemed to consist merely of Arabi, Ovaessian valiantly trying to cajole actors to do a little more than just learn their lines (I saw a messily ambitious *Caligula* and the jolly comic pantomime of the *re-voiced* *Bangash Theatre*. These were the days of the Shiraz Festival and I was informed that jokes about the Shah were permissible, within reason, during that two-week period.

But art is often most valuable, as Sartre observed, when it is

an uncompromised weapon of opposition. And in exile these Iranians have plenty to oppose. It fuels their acting and gives them a sense of purpose.

The quality of acting is remarkable. Ashkanai shuffles through his misfortunes, ageing palpably, spouting defiance. Behrooz Bidar is the supportive Hossein, Khosrow Mahsoori a successful but overweening authority figure, Bahram Ali Ahmadi quite exceptional as a supercilious judge with a Sicilian line to laconic viciousness. Most of the cast of 12 also declare the historical headlines of newspaper boys: the Qajar dynasty ends, newspaper editor arrested, Iran-Transiran railway opened, young prince engaged to Princess Fozdeh, political prisoners are pardoned, and so on.

In opposition, and in exile, the contemporary Iranian theatre has found its voice. It would be easy and wrong of us to underestimate the very real significance of what is now so bravely on show to the British public in Sloane Square.

A sleek fashion parade down the years of palace guards and secret agents who come to pay their respects.

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Vardi, Bennett/Wigmore Hall

David Murray

On Friday and Saturday the Wigmore Hall was impressively crowded for virtuoso recitals on two of the less favoured solo instruments. For the veteran American violinist Emanuel Vardi there was a whole pilgrimage of young violists, as the clatter of viola-cases proved; William Bennett's flute drew what seemed to be a more heterogeneous audience (though they may of course have been concealing flute-cases about their persons). Neither instrument can claim a formidable repertoire, if we agree to ignore a lot of very silly flute-music, and both these performers helped themselves gratefully to transcriptions and the like. By now they must be weary of recycling their custom-built vehicles.

Vardi, a violist of marvellous security and plain musicianship, has been celebrating his instrument for considerably more than 40 years, some of that at the feet of his teacher, the great NBC Symphony. Personality doesn't intrude—the viola is by nature a temperate middle voice, neither a brilliant shouter nor a sonorous authority. Even Vardi's concursive high wire act, his own Paraphrase on the "Blue Danube" (a bit sub-Godowsky), displayed refined agility rather than diabolical slither.

His own adaptation of the Kochanski version of Falla's evergreen "popular Spanish songs" showed how closely the viola can approach vocal expression, so natural that the octave dissonances seemed to be like extraovertivation. His alert young accompanist Kathryn Sturrock rose to the sizzling repeated notes of "Polo" with more panache than most string pianists. In Seymour Barab's Duo op. 2 she was dextrous but no more convinced than I was: the piece is obviously viola-friendly, but ultra-conservative (except for the cheerful American tone) could have been written (in 1890) and clumsily stop-go in effect.

Nardoli's F minor Sonata, a suave period-piece, was simple and better, and better still was the Brahms E-flat Sonata, where Vardi's unpretentious directness (with some well-placed portamento) was a pleasure and an illuminating lesson. Best of all was the great Bach Chaconne from the D minor Partita for

violin: it takes to the viola wonderfully, and Vardi unfolded it with magisterial ease, a seasoned grasp of its proportions and a deceptive smoothness in transitions that only a ripe musician can achieve.

William Bennett's recital gave liberal scope to his accompanist Clifford Benson, who was in superb form, despite "fading" away slightly too loud in a Bach "Sonata in D, art. William Bennett" he covered the flautist which was only what an arranger who disdains to give the BMV number of his original deserves (there is no canonist Bach sonata in D for flute), but he supplied virtuosic elegance to the dominant piano-part of a Ferdinand Ries "Introduction & Polonaise" and was everywhere else a creative partner.

Bennett gave us two other arrangements by himself. One, cheekily programmed as a Mozart "Adagio & Rondo", proved to be Firdoligi's "Per pietà" from *Costi*, on the flute the Adagio was exquisite, which for one's favourite sopranos—but the dramatic weight that the Rondo bears in the opera (Firdoligi, dismayed by the depth of her response to Thomas's *Francesca de Rimini*, cultivated timbre couldn't capture the earthy robustness of Alexander Baillie's cello last week. It gave the nattering Allegro tune a pneumatic-plastic quality that was both apposite and funny.

Besides the salon Ries piece, the other authentic flute-piece was a Taffanel Fantasy on themes from *Les Amours*. The *Amours* de Rimini delivered in purring style, and the Reinicke "Undine" Sonata (after the fairytale that inspired the *Undine* of Ravel, Debussy and Graudenz), which has had several ravings since Judith Pearce revived it a few seasons ago. It is a fluent and disarming piece, despite the leisurely 20 minutes. It takes, generous to flute and piano alike, and with uniformly almost-memorable tunes, lavishing affectionate subtleties upon it. Bennett and Benson made it delectable. Though Bennett is a faultless executant almost to a fault, he graced Reinicke's fey mermaid with human intimations of a most appealing kind.

Cinderella/Covent Garden

Clement Crisp

With Antoinette Sibley and Anthony Dowell leading the performance on Thursday night at Covent Garden, there could be little wrong with *Cinderella*. In the interpretations of both artists there is so complete and so natural an understanding of the Ashtonian style that the ballet comes completely into focus, no matter how intricate or undisciplined certain of the surrounding roles, and there is currently such a raucous view of the Ugly Sisters on offer that much of the fun and charm of the first act is dissipated.

It is Miss Sibley who tells us of comedy as well as pathos in the kitchen scene, stirring with her broom, cavalier in sweetest fashion, setting out the dances with a lightness of heart and of step that are irresistible, and the suddenly catching at our hearts in her grief and in the exquisite placing of gesture as she motions towards her mother's portrait.

At the ball, she is enchantment personified in her first entrance, and once in the princely arms of Mr Dowell the dance riggs out clear, true, classically exact (faultless line; crystalline musical accents) and effortless in speaking of joy and romance. The final duet, after the bestowing of the oranges,

was an object lesson in Ashtonian partnership, ever harmonious, unexaggerated, yet radiant with feeling and exultant.

From Mr Dowell, of course, nobility at every moment, danced or dramatic, and the slightest and nicest flickers of horror when faced with the madcap bank grotesques of the sisters.

Deirdre Eyde looked very beautiful as the Fairy Godmother and displayed her variation with delightful ease; the chorus of stars moved clearly through the ingenuities of their waltz; the score sounded well under Ashley Lawrence's baton. It is music sometimes—though not here—undervalued, for it offers felicitous solutions to the ideals of *Cinderella*'s ballet in an age far removed from that of the Mariinsky spectacles which inspired it.

Berio premiere

Aldo Bennici with the BBC Philharmonic Orchestra, conducted by Claudio Abbado, will give the world premiere of Berio's most recent composition *Voci* for viola and chamber ensemble, in the Free Trade Hall, Manchester, tomorrow evening.

Arts Guide

Music/Monday, Opera and Ballet/Tuesday, Theatre/Wednesday, Exhibitions/Thursday, A selective guide to all the Arts appears each Friday.

Jan 11-17

Music

LONDON

Queen Elizabeth Hall: Antonio Barboza, piano, Haydn, Chopin and Villa-Lobos (Tue), (928 3191).

Purcell Room: Roth String Quartet (Wed), (928 3191).

Stockhausen's Hymnen (complete), BBC Symphony Orchestra conducted by Peter Eötvös, Barbican Hall (Wed), (928 8881).

Academy of Ancient Music directed by Christopher Hogwood with Emma Kirkby, soprano, David Thomas, bass, and Catherine Mackintosh and Christopher Hurns, violin.

PARIS

Reinhold Scotto Recital (Mon), Théâtre de l'Ateneo (742 87 27).

Daniel Barenboim piano recital: Beethoven sonatas (Tue), Salle Pleyel (563 88 73).

Ensemble Orchestral de Paris with Jean-Pierre Wallat as conductor and soloist, Huguette Dreyfus, Harpsichord, Paul Souff, Cello, Daniel Arigoni, Oboe, Bach family (Wed), Salle Gaveau (563 59 30).

Orchestre de Paris conducted by Riccardo Chailly, Brigitte Engerer, Piano Stravinsky, Saint-Saens, Schumann (Wed, Thur), Salle Pleyel (563 59 73).

C.P.E. Bach (Tue), Salle Gaveau (563 59 30).

Orchestre National de France with Radio France Choir conducted by Georges Pretre: Berlioz - Romeo and Juliette (Wed), Théâtre des Champs-Élysées (724 47 77).

Ensemble Orchestral de Paris with Jean-Pierre Wallat as conductor and soloist, Huguette Dreyfus, Harpsichord, Paul Souff, Cello, Daniel Arigoni, Oboe, Bach family (Wed), Salle Gaveau (563 59 30).

Orchestre de Paris conducted by Riccardo Chailly, Brigitte Engerer, Piano Stravinsky, Saint-Saens, Schumann (Wed, Thur), Salle Pleyel (563 59 73).

NETHERLANDS

Utrecht, Muziekcentrum Vredenburg, Pascal Devoyon, piano, Mozart, Franck, Brahms (Tue); The Utrecht Symphony Orchestra with Tonia Brown, violin, and Norkina Imai, viola, Bach, Mendelssohn, Mozart (Wed); in the recital hall (Wed) the Gothic Voices Ensemble conducted by Christopher Page, with works by Machaut and his contemporaries.

The Amsterdam Philharmonic conducted by Thomas Sandeling, with Frans Bruggen, recorder, Mozart, Bach, Shostakovich (Tue); David Bradshaw and Cosmo Buonno, piano, Schubert, Grieg, Ravel, Liszt (Recital Hall, Tue); Schubert Lieder from Ely Ameling, soprano, accompanied by Rudolf Jansen (Wed); in the recital hall (Wed) The Shostakovich Quartet with works by the composer. (71 83 45)

Amsterdam, Concertgebouw, Robert Holl, Baritone, with Rudolf Jansen, piano, Beethoven, Beethoven, Schubert, Schumann, Brahms, Wolf, Pfitzner (Mon); Amsterdam Philharmonic conducted by Thomas Sandeling, with Frans Bruggen, recorder, Mozart, Bach, Shostakovich (Tue); David Bradshaw and Cosmo Buonno, piano, Schubert, Grieg, Ravel, Liszt (Recital Hall, Tue); Schubert Lieder from Ely Ameling, soprano, accompanied by Rudolf Jansen (Wed); in the recital hall (Wed) The Shostakovich Quartet with works by the composer. (71 83 45)

Orchestre de Paris conducted by Riccardo Chailly, Brigitte Engerer, Piano Stravinsky, Saint-Saens, Schumann (Wed, Thur), Salle Pleyel (563 59 73).

Poulenc, Berio, Britten, Kalliwoda (Tue), 92nd St. Y, 1395 Lexington Av (427 4410).

Carnegie Hall: New York Pops, Slickee Henderson conducting, Lerner and Loewe with John Raitt, solo, Rossini, Borodina, Loewe (Wed); Roberto Pears, soprano recital, Handel.

Washington, National Symphony (Concert Hall): Matiaslav Rostropovich conducting, Beethoven, Albert (Thur), Kennedy Center (254 5771).

EUROFI (U.K.) LIMITED

Following the successful programme of seminars held during 1984 on access to European Community and UK Government funds, Eurofi (UK) Limited are sponsoring a further programme for 1985. There has been a growing realisation over the last few years that UK enterprises are not making maximum use of funds available from UK and EEC authorities. November 1984 announcements of major changes to UK Regional Policy placed even greater emphasis on discretion and the need to negotiate incentives. The seminars will be held on the theme European Community and UK Government Financial Incentives for Commerce and Industry and will take account of all the recent changes. The seminars will take place at several regional business centres in addition to those held in London.

DATES AND VENUES are under:

| | |
|---------------------|---|
| 20th February 1985 | The Birmingham Metropole & Warwick Hotel |
| 13th March 1985 | The Goring Hotel, London |
| 10th April 1985 | The Grosvenor Park Hotel, Newcastle |
| 5th June 1985 | The St. Ermin's Hotel, London |
| 12th June 1985 | The Post House Hotel, Manchester |
| 18th September 1985 | The Holiday Inn, Glasgow |
| 15th October 1985 | The Goring Hotel, London |
| 20th November 1985 | The University of Aston Management Centre, Birmingham |

Fees for each seminar £95.00 plus VAT. For further information and reservations contact: Jean Gale, Sales Liaison, Eurofi (U.K.) Ltd., The Old Rectory, Northall, Nr. Biggleswade, Bedfordshire, SG18 9AH. Telephone: 07672 680 - Telex: 849791 Eurofi

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FINANCIAL TIMES

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Monday January 14 1985

Challenging Mr Scargill

IT IS now quite possible that the British coal strike will last a year, perhaps longer. The country has learned to live with it. There have been no power cuts, even during the present miserable weather, and there are none in prospect. Whatever the final outcome, it is pretty clear that Mr Arthur Scargill, the president of the National Union of Mineworkers, will not win—in the sense of forcing a humiliating climbdown by the Government and the National Coal Board. Indeed, it is conceivable that the effective end will come when sufficient miners go back to work to produce enough coal for the country's requirements. Mr Scargill and some others may still stay out, but they will have lost.

That is not the worst possible result, but neither is it entirely satisfactory. The Government and the country may have survived the strike, but they will still have to live with its consequences. In many ways there have been immensely damaging. They have been damaging to the NUM and its members; witness the prospect that the Nottinghamshire contingent might be expelled from the national union. True, there have been precedents for that and there is something to be said for negotiations being conducted at a regional rather than national level. But it is not a symmetrical split and, in any case, Mr Scargill is putting the national union in a position of not being able to call a strike again in the foreseeable future. He is destroying rather than consolidating his power base.

TUC damaged

The strike has been damaging to the trades union movement as a whole, and particularly to the Trades Union Congress. The TUC has tried at times to support the strike, but it has not looked divided and impotent. That does not inspire much confidence in its capacity for benign influence in future industrial relations.

The strike has also been damaging to the constitutional left across the board. Mr Neil Kinnock has been denied the joyride that he might have had as the new leader of the Labour Party. Quite often he has not known which way to turn, avoiding the picket lines for months, then suddenly appearing on

them just after Christmas. It is still not known precisely where he stands, except in a state of considerable embarrassment. Moreover, the inquest is still to come. There will be many on the hard left who will blame the leadership of the Parliamentary Labour Party if Mr Scargill is seen to be defeated.

Not least, the strike has been damaging to the British economy. Certainly the cost has been bearable and probably it was one that had to be paid in the circumstances. Yet the year 1984 would have been calmer economically if the strike had not taken place. Residual problems will remain even when it is over: like what the policy for coal is going to be and what are to be the effects on the coal industry.

From all this damage two conclusions can be drawn. The first is that there is nothing more that the Government or the coal board can offer than what is already on the table. The NUM cannot be allowed the right of veto over the closure of pits which are judged to be insufficiently economic and therefore force up the average cost of coal. It might help if the Government and the NCB were to explain their case yet again from the beginning, with all their offers to cushion the miners from hardship.

The second conclusion is that it is up to the left to help itself. It is the left which is being most hurt by the dispute and which is showing not the slightest sign of recovery. On the contrary, it is beginning to fragment faster than ever. Sometime soon the TUC, the Labour Party, the individual unions, the rest of the members of the executive committee of the NUM—preferably a mixture of the whole lot—are going to have to stand up to Mr Scargill and tell him he is wrong. For not only has he not served a single pit or miner's job, he is destroying countless other jobs besides. What began as an industrial dispute is turning into a calamity for the left. The country can survive that if it has to, but is the left really so feeble that it can allow itself to be trampled on by Mr Scargill?

The amnesty offer in Nicaragua

SR DANIEL ORTEGA has marked his inauguration as Nicaragua's new president with an amnesty offer to the regime's enemies which appears both far reaching and conciliatory. On condition that the US backed guerrilla forces lay down their arms, anyone who benefits from the amnesty and under Red Cross auspices be reintegrated into society.

The marxist-orientated Sandinista government has made amnesty offers before and some members of the rebel groups have taken advantage. But until now the amnesty has excluded all the leaders and has had no impact on the level of rebel military activity or on the willingness of the main groups to talk peace.

The regime's opponents, whether in Washington or among the "contra" rebels, can easily read into this offer a sign of weakness. They will argue that the escalating conflict is having a damaging effect on Sandinista morale, severely disrupting the economy and as a result making the Government more flexible.

The next step surely must be up to the incoming Reagan administration. In the previous four years, President Reagan allowed the hardliners among his entourage to dictate policy on Central America. The last flourish of this group was in November when they initiated a scare campaign over delivery of Soviet MIG aircraft to Nicaragua which turned out to be wrong. Since then Mr George Shultz seems to have consolidated his hold at the State Department and there is the prospect of greater pragmatism.

The mechanisms are in place for Nicaragua and the US to improve their relations via the secret talks that have been held from time to time in Mexico. These talks have always foundered because the US seems to have been unable to make up its mind whether it is prepared to live with a leftist regime in Nicaragua. This regime is now weak enough to be malleable; but not to surrender its independence. If the pragmatists in Washington are in the ascendancy, the amnesty "message" is not such a herd one to interpret and it would help restore stability to Central America.

It comes at a potentially crucial juncture. Although the contras have had their formal US financial aid cut, indirect assistance has still been reaching them. Nevertheless, to survive they need new congressional money. They also need the continued goodwill of Honduras where the bulk have their rear bases. Honduras has be-

come increasingly concerned by the political and military implications of their presence and has begun to curb their activity. The contras themselves cannot sustain the current level of casualties for much more than a year without major new recruitment. This will be difficult since the backbone remains former Somoza supporters who fled the country in 1979.

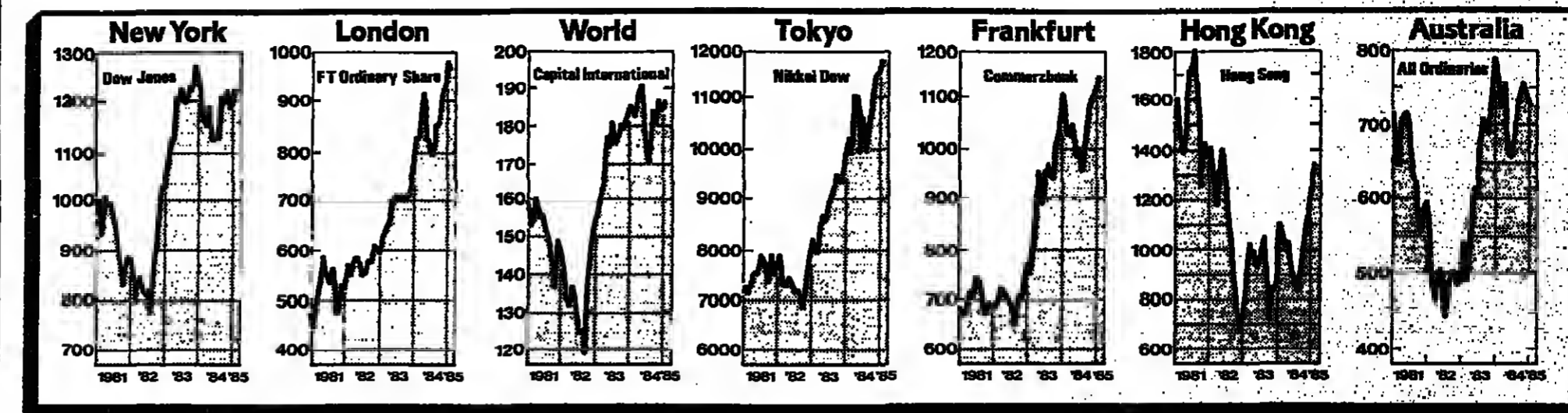
Errors

The Sandinistas have sought to divide their opponents by opening discussions with the main Miskito Indian opposition group fighting on the Caribbean coast. This is itself a significant development because, in so doing, the government has admitted early errors in trying to convert these remote largely English-speaking Caribbean communities to marxism, ignoring their individual culture.

Parallel with this the government began last year talks with the Sandinista rebels to improve their relations via the secret talks that have been held from time to time in Mexico. These talks have always foundered because the US seems to have been unable to make up its mind whether it is prepared to live with a leftist regime in Nicaragua. This regime is now weak enough to be malleable; but not to surrender its independence. If the pragmatists in Washington are in the ascendancy, the amnesty "message" is not such a herd one to interpret and it would help restore stability to Central America.

Staff of the Export Credits Guaranty Department, the agency that will be guaranteeing the power project, are expected to sign the act because they are within the civil service. Asked to explain why the act has been trundled out in this case a Department of Trade man took refuge in the need for secrecy. "I can't discuss it. Our relationship with the banks is a confidential one. I can't confirm or deny that people have been asked to sign."

They have. But it is probably a breach of the Official Secrets Act to say so.



Chris Walker

Equities scale new peaks

By Martin Dickson and Gordon Crumb

STOCK MARKETS around the world have begun the New Year in appropriately cheerful mood, with indices reaching record peaks in London, across Continental Europe and in Tokyo.

In London, it looked at one time last week as if the FT Ordinary index was in a race with sterling to the record books. It was heading as fast towards 1000 as the pound was dropping towards parity with the dollar.

Tokyo managed to push its record-breaking December run even higher, while across Europe new peaks were reached in Frankfurt, Paris, Amsterdam, Zurich, Milan, Oslo and Madrid. New York, although some 60 points short of the peak in the Dow Jones Industrial average, reached in November 1983, was also on an upward trend

strength of the dollar, corporate profitability, depressed commodity prices and that indefinable factor, investor sentiment. Perhaps above all, eyes remain firmly focussed on an uncertain immediate future for the U.S. economy, given that either recession or steady growth in America has major repercussions on the rest of the world.

Sentiment on Wall Street is particularly mixed, with analysts split between those who foresee a sluggish market in 1985 and those who believe it is on the point of a strong bull rally. "The mood of the professionals is one of confusion," said Mr Robert Stovall, a vice-president at brokerage house Dean Witter Reynolds. "Uncertainty about the future direction of the U.S. economy contrasts sharply with the relatively buoyant economic picture in Europe and Japan, which has helped underpin the rally in these centres."

In the UK, for example, real economic growth is expected to be in the order of 2½ to 3 per cent this year—all but unassailable by the miners' strike. West Germany, which has bounced back from last year's metalworkers' stoppage, could experience a 3 per cent increase.

Higher growth coupled with lower rates of inflation should in turn feed through to the profits of companies where productivity has already been boosted by recession-induced slumping programmes.

Many European and Japanese companies are also benefiting greatly from the relative strength of the dollar against their national currencies, which is boosting export receipts and the repatriated profits of businesses with U.S. subsidiaries.

Across Europe, investor interest has turned to companies with good U.S. export prospects, for example, shares in Porsche, the West German luxury car manufacturer, although now past their best, have drawn vigorous demand. The corollary of a strong

dollar has been high interest rates, which have hit European corporate profitability. However, nudged by the U.S. Federal Reserve's pre-Christmas cut in the discount rate, interest rates in a number of centres now seem on a downward trend—despite the UK's one point rise in base rate on Friday.

In the markets' view however, all these factors should add up to a healthy rise in European and Japanese corporate profitability in 1985, on top of an excellent result in 1984. For example, in Britain, where Government tax cuts worth £300 could be in prospect, brokers are forecasting pre-tax profit increases of around 15 per cent this year, on top of the 18 to 20 per cent rises estimated for 1984. Dividend growth is likely to be

prices is helping to keep down the cost of manufacturing and shipping goods, while a generally pessimistic outlook for gold helps to deflect investment demand into equities. Where there are beneficiaries from low commodity prices there are also losers though, notably the resource-based markets of Australia, Canada and South Africa, where indices overall stand well below their 1984 highs.

Again, the effects work in differing ways for each market. Johannesburg gold shares are at historic highs in rand terms because the local currency's precipitate fall against the dollar—it has halved in value since early 1982.

Gold accounts for almost half South Africa's total exports by value. While the other two

the tax structure due in mid-year is making for uncertainty. As for South Africa, companies face daunting provisions to finance dollar borrowings made in past years.

Britain, although, now one of the world's leading oil producers, finds itself in a more comfortable position against a background of lower energy prices. For falls in its dollar denominated earnings from the North Sea have been offset by the sinking sterling-dollar exchange rate—boosting the Government's sterling income and aiding exporters.

The general buoyancy of world stock markets helped Hong Kong rise to its highest level since June 1982. But the main reason for the bull run of the past two weeks is the re-emergence of confidence following the agreement between Britain and China on the colony's future. Political uncertainty, in a market dominated by volatile property stocks, had kept local share prices depressed—despite the strong performance of the economy.

Hong Kong, however, is very much a case on its own. The question facing most European markets and Japan is how much further bourses can rise.

Analysts in London and Frankfurt point out that 1985's profits and dividends picture is already fully written in its current share prices.

"I don't think the London market is expensive," says Mr Michael Prag, senior partner of Simon and Coates, "but I think it is hard to justify any significant rise this year." In Japan, some brokers consider that the current rally is likely to run out of steam soon—but the outlook thereafter is uncertain. Beyond April predictions vary, with most brokers expecting a rising pattern similar to last year.

However, overshadowing all such forecasts is the U.S. economy, which is moving in a very different cyclical pattern to Europe and the Far East.

Concern in the first half of last year that the economy was overheating has given way to fears of a marked slowdown and doubts whether the Fed's move to ease credit before Christmas can revive the growth rate without sparking inflation. Last week's rally was due in no small part to a statement by Mr Paul Volcker, the Fed chairman, that the economy might be building a trend towards more stability of prices.

Nevertheless, there remains considerable nervousness about the budget deficit, the tax reform being considered by President Reagan and the threat the strong dollar poses to the earnings of companies manufacturing internationally traded goods.

"The immediate tone of the market is likely to be set by

Confidence in Hong Kong's future reflected in bull run

fourth-quarter 1984 results, which will be unveiled over the next month. Last week's initial results from Chemical Bank and Bank of New York—helped spur the Dow, while the confident mood of Detroit was reflected in motor shares.

While some nasty shocks could still be to come, the preponderant tone on Wall Street seems bullish, with analysts expecting a healthy growth in corporate profits over the year—albeit lower than last year's 20 per cent.

Says one leading New York analyst: "With interest rates declining, a continued stimulative fiscal policy and no real speculative excesses in the system, this looks like many ways like the beginning of a recovery rather than the late stages of one."

Good prospects for profits growth in Europe and Japan

through much of last week. By Friday a duller tone did settle over most markets—but the mood generally remains buoyant.

So what lies behind this optimism and how strongly based is it? To some extent, the upturn may be seasonal. The turn of the year has traditionally been accompanied by strong buying in most world markets as institutions receive their annual coupon payments on government bonds and other investments.

In Japan, an additional factor is the injection into the equity market, via investment trusts, of workers' sizeable end-of-year bonuses.

However, more fundamental forces than this are at work: the outlook for the world economy and interest rates, the

Overshadowing all forecasts, the U.S. economy is moving in a very different cyclical pattern to Europe and the Far East

more modest—possibly around 10 per cent—but still a good five percentage points above the rate of inflation.

Institutional investors in Europe and Japan are already flush with cash, thanks to good 1984 dividend payments (and a record wave of highly profitable takeover bids in the case of Britain, where institutions are currently estimated to hold some £900 of cash and liquid assets). All this money is seeking a home, and much of it is going into equities—as appears to be substantial flows of U.S. institutional money, attracted by the relative cheapness of many European markets.

Also buoying the Japanese and most European markets is the depressed level of world commodity values; a persistent downward pressure on oil

producing countries are far less dependent on the metal, distress has nevertheless been felt on the Australian gold board. One broker puts the break-even point for even the most efficient of quoted gold producers there as not much below \$230 an ounce. With inflation hovering on the edge of 300, the slide in the metal has already rendered the majority on the list marginal.

Many Canadian and Australian stocks are near 12-month lows and there are few other areas of cheer in the markets. Canada labours under a budget deficit slightly larger even than that of the U.S. in proportion to gross national product. Australian corporate earnings growth may already have peaked, and an overhaul of

Bankers agree to keep secrets

London bankers involved in raising loans for a nuclear power station project in China have been required to sign the Official Secrets Act. According to one—who, forgoeably asks to remain anonymous—the order has been made at the highest level of the Cabinet.

Some of the City gents are a little offended by the implied slur on their discretion. But they have not had any choice in the matter. One of them calls the move "a little proceeding 'inducement'."

At least half a dozen bankers have signed the pledge so far. Others have had to give undertakings that they will not blab about the now-imminent contract with the Chinese.

The British Government has felt it necessary to impose its own Great Wall of Silence because it is, in effect, leading the financing syndicate and is acutely aware that the Chinese are sensitive about pre-publicity.

Premiere disclosures about the negotiations for the £3.5m project at Daya Bay opposite Hong Kong might, it is argued, prejudice the outcome for GEC, the British contractor chosen to supply two 900 megawatt turbine generators. It is not unknown for bankers involved in defence sales to be asked to sign the Official Secrets Act. But a Bank of England man tells me he cannot recall previous cases for commercial transactions.

Staff of the Export Credits Guaranty Department, the agency that will be guaranteeing the power project, are expected to sign the act because they are within the civil service.

Asked to explain why the act has been trundled out in this case a Department of Trade man took refuge in the need for secrecy. "I can't discuss it. Our relationship with the banks is a confidential one. I can't confirm or deny that people have been asked to sign."

They have. But it is probably a breach of the Official Secrets Act to say so.

Men and Matters

Diverging trends

It is sometimes hazardous to use extracts from newspaper articles in advertisements but the Confederation of British Industry hardly expected to be stirring up trouble when it used a quotation from the FT to promote its steadily respectable Industrial Trends Survey.

The advertisement, intended for display in the Department of Trade and Industry's magazine *British Business*, quoted from a recent FT story which drew attention to discrepancies between official statistics for industrial production and the CBI survey results.

Our story had commented that Treasury economists "were inclined to give more weight" to the CBI results than to more pessimistic figures from the Central Statistical Office.

Perhaps the FT had touched a raw nerve. Sensitive DTI officials vetoed that part of the advertisement and it was replaced by a more anodyne phrase.

Now I see what they mean by "No FT—no comment."

High marks

The whiff of a generous cash handout from the Treasury's coffers to build the European Community Trade Mark Office in London is having an enlivening effect upon all the interested parties.

Among London's trade mark agents and associated legal eagles the idea of a prestige building on the St George's Hospital site at Hyde Park Corner, which I mentioned recently, is proving very attractive.

But the City of London is fighting back. One Guildhall worthy says: "Once or twice in a century something comes



"He's desperate to get a headmastership before the wedding starts"

along which would have a major impact upon the City. The trade mark office is just such a prize—we are going to get it."

The City of London is offering an impressive site—the Whitefriars area between the Thames and Fleet Street, some 112,000 sq ft of prime office space. It would be hard by the law courts, the barristers' inns, and Chancery Lane where the British trade mark agencies cluster.

Planning permission already exists for a suitable new building on the site which until recently has been the home of the Guildhall School of Music and Drama.

If Britain is to stay in the race for the Euro office with West Germany, France, and Holland, a firm proposal must be lodged with Brussels within the next two months.

Iain Mills, the Conservative MP who is co-ordinating the British drive to secure the

Watts steps out

Reggie Watts has surprised the public relations business by his decision to quit the London chairmanship of Burson-Marsteller, which claims it is the world's largest PR firm.

Watts, who is a former chairman of the Public Relations Consultants' Association, intends to go it alone from next month. He also assures me that he will not be poaching any staff or clients from his late employers as so often happens in the PR and advertising trades.

But the real surprise surrounding Watts' move is that his new business is to be helpfully financed by Peter Gummer, chairman of the rival PR consultancy Shandwick—and equally famous for being brother of the Conservative Party chairman John Selwyn Gummer.

"This is a purely personal investment," insists Peter Gummer, "and nothing at all to do with Shandwick. I have known Reggie for 20 years and I have great faith in him to build a successful company in a relatively short time."

Meanwhile, the reshuffle back at Burson sees William Noonan, former president of the U.S. operation, coming to London as chief executive. That could prove to be a holding operation with Frank Barnard and Josephine Lundberg, the present joint MDs, being among the long-term favourites to succeed Watts.

BASE LENDING RATES

| | | | |
|-------------------------|-------|----------------------------|------|
| A.B.N. Bank | 9½% | C. Hoare & Co. | 9½% |
| Allied Irish Bank | 9½% | Hong Kong & Shanghai | 10½% |
| Amro Bank | 9½% | Johnson Matthey Bkrs. | 10½% |
| Henry Ansbacher | 10½% | Knowles & Co. Ltd. | 10½% |
| Armo Trust Ltd. | 10½% | Lloyds Bank | 10½% |
| Associates Cap. Corp. | 9½% | Mallinall Limited | 10 ½ |
| Banco de Bilbao | 9½% | Edward Manzon & Co. | 10½% |
| Bank Hapoalim | 9½% | Meghraj and Sons Ltd. | 10½% |
| BCCI | 10½% | Midland Bank | 10½% |
| Bank of Ireland | 9½% | Morgan Grenfell | 9½% |
| Bank of Cyprus | 9½% | Mount Credit Corp. Ltd. | 10½% |
| Bank of India | 9½% | National Bk. of Kuwait | 10½% |
| Bank of Scotland | 10½% | National Girobank | 9½% |
| Banque Belge Ltd. | 9½% | National Westminster | 10½% |
| Barclays Bank | 10½% | Norwich Gen. Trst. | 10½% |
| Beneficial Trust Ltd. | 10½% | People's Trst. & Sav. Ltd. | 10½% |
| Brit. Bank of Mid. East | 10½% | Provincial Trst. Ltd. | 11½% |
| Browne Shipley | 10½% | R. Raphael & Sons | 10½% |
| CL Bank Nederland | 10½% | P. S. Refson | 10½% |
| Canada Perm't Trust | 10½% | Roxburgh Guarantees | 11 ½ |
| Cayzer Ltd. | 10½% | Royal Bk. of Scotland | 10½% |
| Cedar Holdings | 11 ½ | Royal Trust Co. Canada | 9½% |
| Charterhouse Japhet | 10½% | J. Henry Schroder Wagg | 10½% |
| Choulatons** | | Standard Chartered | 10½% |
| Citibank NA | 10½% | Trade Dev. Bank | 9½% |
| Citibank Savings | 110½% | TCC | 9½% |
| Clydesdale Bank | 10½% | Trustee Savings Bank | 10½% |
| C. E. Coates & Co. Ltd. | 10½% | United Bank of Kuwait | 10½% |
| Comm. Bk. N. East | 9½% | United Mizrahi Bank | 10½% |
| Consolidated Credits | 9½% | Westpac Banking Corp. | 9½% |
| Co-operative Bank | 9½% | Whiteaway Laidlaw | 11 ½ |
| The Cyprus Popular Bk | 9½% | Williams & Glyn's | 10½% |
| Dunbar & Co. Ltd. | 10½% | Wintour Secs. Ltd. | 10½% |
| E. Duncan Lawrie | 9½% | Yorkshire Bank | 10½% |
| E. C. Trust | 11 ½ | | |
| Exeter Trst. Ltd. | 11 ½ | | |
| First Nat. Fin. Corp. | 11 ½ | | |
| First Nat. Secs. Ltd. | 11 ½ | | |
| Robert Fleming & Co. | 10½% | | |
| Robert Fraser & Ptns. | 10 ½ | | |
| Grindlays Bank | 110½% | | |
| Guinness Mahon | 10½% | | |
| Hamrore Bank | 10½% | | |
| Hertsble & Gen. Trst | 10½% | | |
| Hill Samuel | 10½% | | |

Members of the Accepting House Committee:
 7-day deposits 6.25% 1 month 6.75% 3 months 7.25% 6 months 7.75% 12 months 8.25%
 7-day deposits on sums of under £10,000 8.4% £10,000 up to £50,000 7.4% £50,000 and over 6.7%
 Call deposits £1,000 and over 7.4%
 31-day deposits over £1,000 8.4%
 Mortgage base rate
 Demand deposits 7%
 See Provincial Trst. Ltd.

Observer

For factories & warehouses



SECTION II - COMPANIES AND MARKETS

FINANCIAL TIMES

Monday January 14 1985



Cost-cutting credit vehicle that is not to be sniffed at

IT IS not so easy these days in the Eurobond market to turn up your nose at a Sniff, writes Peter Montagnon in London.

For Sniffs, or syndicated-note issuance facilities as they are known to the trade, have already largely replaced the syndicated loan as an important capital-market vehicle for top-rated borrowers.

Now, as the new year gets under way, it seems likely that lesser-rated borrowers will also want to try their luck in that market in the hope of reducing their costs.

Portugal, for example, is already pondering the mechanism as it draws up plans for a large borrowing to be launched probably within

EUROBOND TURNOVER (nominal value in \$m)

| | Credit | Euromarket |
|---------------|---------|------------|
| U.S. bonds | 7,037.0 | 2,195.0 |
| Previous week | 5,792.9 | 2,850.5 |
| Other bonds | 1,017.7 | 257.6 |
| Previous week | 2,065.1 | 1,066.0 |

the next few weeks. The deal, amounting to some \$300m to \$500m, will be the Republic's only big borrowing exercise this year.

Portugal's credit rating has greatly improved since 1983, when it had to seek assistance from the International Monetary Fund and was frequently touted as a likely European candidate for rescheduling in Latin American style. Last year its current-account deficit was only some \$500m - far below the IMF target of \$1.25bn - and this year it is also likely to be well below \$1bn.

None the less, it is only just emerging from an IMF programme and already has a relatively high total debt of \$15.1bn. That means it is far from being the sort of borrower that normally qualifies for a note facility. Those facilities involve the continuous sale of short-term paper in the money markets and some bankers fear that Portuguese paper

might simply not be good enough to sell.

From one perspective, that argument makes little objective sense. The risk run by an investor who purchases a Euronote is not actually that the borrower will not repay when it matures but that the underwriters whose job it is to back up the facility might for some reason prove unable or unwilling to step in with the cash required to refinance the note. In that sense, investors need to look more closely at the quality of the underwriting group than at the end borrower itself.

That means that the ability of a borrower to find underwriters for its facility acts as the main constraint on its eligibility to tap the Eurobond market. In trying to tap the market for \$500m, albeit using a facility linked to short-term bank advances rather than Eurobonds proper, Turkey has already run up against that difficulty. After assembling only seven lead managers willing to underwrite \$30m apiece, Citicorp, which is arranging the deal, has now lowered its sights and is seeking more lead managers at only \$20m.

The difficulty is not just that a Turkish advance or a Portuguese Euronote might prove hard to sell in a market where it has to compete with higher-ranking paper. For such borrowers there is also the obstacle that underwriting banks are having to add to their country exposure for what might be a relatively poor return at a time when concern is growing at the overall size of their standby commitments.

However, bankers believe that the smaller commitment now being sought from banks invited to enter the Turkish deal should mean a rapid increase in the size of the lead management group.

A successful deal for Turkey implies, that even Portugal should be able to tap the Eurobond market for reasonably large amounts - provided that the underwriting return is pitched high enough.

Bond issue blizzard forms drifts that could linger for weeks

THE blizzard of new issues in the Eurobond market last week was heavier than the snowfalls in Europe, writes Maggie Urry in London.

Some of the deals quickly melted away from syndicate managers' books, but a lot of paper has formed drifts which could linger for weeks.

Close to \$3.5bn was called for last week, taking all types of U.S. dollar deals together. Of that, at least \$1bn is reckoned still to be unsold, and while the steepness of the yield curve allows syndicate managers to

fund their holdings cheaply, the big issuing houses must clear paper off their books to make room for the next bunch of deals to come. In that situation, the bourses with good retail distribution come out on top.

The question now is whether syndicate managers have lost enough money on last week's difficult deals to deter them from bidding too aggressively this week. There is no doubt that big losses have been made.

Opinion is divided over whether the losses have got too big.

Once again, however, the deals that went best were those for Japanese borrowers such as NTT, IBM, Orient Finance and Sumitomo. By now everyone has realised that these bonds go straight back to Japan where the institutions can use a loophole in the Ministry of Finance's rules on overseas investment to increase their exposure to higher yielding dollar debt. It must be assumed that the Ministry of Finance has realised this, too. While it means that Japanese borrowers can fund cheaply by making Eurodollar bond issues, the ministry may be

thinking of ways to put a stop to the practice.

The European currency unit sector always seems to enjoy its own issues, with coupons coming under the 10 per cent level now. On Friday, Mitsubishi Finance, which has just started making a market in Ecu issues, launched a deal for Banca Nazionale dell'Agricoltura. It traded at a ¼ point discount to its yet-to-be-fixed issue price.

In the sterling sector, Morgan Grenfell's floating rate note deal for the specially formed company,

Mini-Mortgage Intermediary Note Issuer, could be the first of many. The idea of funding mortgages in the bond market must appeal to other banks in the mortgage business which would like to get the loans off their balance sheet.

The D-Mark bond market had planned its heavy week of issues. By Friday that market was in difficulties as fears of a rise in interest rates were rumoured and the dollar continued to rise. Over the week, prices fell by ¼ point, with most of that on Friday.

As well as the innovations from KLM and Sweden, the Swiss franc bond market had a happier week with prices gaining as much as ½ point in places. Political pressures on Oesterreichische Donaukraftwerke to delay its planned power station meant a sharp reduction in its 10-year issue to SwFr 70m from a previous maximum of SwFr 150m.

Pressure on space caused by the unprecedented number of new bond issues last week means that only book runners names are listed in the table below.

NEW INTERNATIONAL BOND ISSUES

| Borrowers | Amount m. | Maturity | Av. life years | Coupon % | Price | Lead Manager | Offer yield % | Borrowers | Amount m. | Maturity | Av. life years | Coupon % | Price | Lead Manager | Offer yield % |
|----------------------------|-----------|----------|----------------|----------|--------|--------------------|---------------|-----------------------------|-----------|----------|----------------|----------|-------|-----------------------|---------------|
| U.S. DOLLARS | | | | | | | | SWISS FRANCES | | | | | | | |
| Nippon Tel. & Tel. † | 100 | 1992 | 7 | 10% | 100 | Bge Paribas | 18.625 | Yokohama Sp. † | 30 | 1990 | - | 2 | 100 | UBS | 2.000 |
| Orion Finance † | 250 | 1997 | 12 | ¼ | 100 | CSFB | - | Tokyo Sp. † | 50 | 1990 | - | 2 | 100 | Swiss Volksbank | 2.000 |
| Orion Finance † | 50 | 1992 | 7 | 11 | 100 | Nomura Int. | 11.000 | Japan Elec. Computer † | 50 | 1000 | - | 5% | 100 | Bge Paribas (Swiss) | 5.825 |
| UBAF (a) † | 100 | 1995 | 10 | ¼ | 100 | Merrill Lynch | - | Mitsubishi Rayon † | 150 | 1990 | - | (2) | 100 | UBS | - |
| Federated Dept. Stores † | 100 | 1990 | 5 | 11 | 100 | Latham Bros. | 11.000 | Daimler-Benz † | 70 | 1995 | - | 5% | 100 | UBS | 5.375 |
| Banco de Chile † | 50 | 1992 | 7 | 12 | 100 | CSFB | 12.000 | Auer † | 100 | 1991 | - | 5 | 99½ | UBS | 6.182 |
| Tokyo Corp. † | 40 | 1990 | 5 | (8½) | 100 | Yamichi Int. (Eur) | - | Sharp Corp. † | 200 | 1990 | - | (2) | 100 | Credit Suisse | - |
| IBM (a) † | 300 | 1989 | 4 | 10% | 100 | Salomon Bros. | 10.375 | Topy Industries † | 40 | 1000 | - | (3½) | 100 | Swiss Volksbank | - |
| Yamato Kogyo † | 30 | 1990 | 5 | (8½) | 100 | Dalmeida Bros. | - | Tokyo Elec. Power | 150 | 1993 | - | 5% | 100 | UBS | - |
| Usaka Transformer † | 20 | 1990 | 5 | (8½) | 100 | Newmont Int. | - | Shimizu Corp. † | 150 | 1993 | - | (2) | 100 | Credit Suisse | - |
| BJI Int. † | 100 | 1992 | 7 | 10% | 100 | BJI Int. | 10.750 | Sweden † | 100 | 1995 | - | 6% | 100 | Tender Sale | - |
| BJI Int. † | 100 | 1985 | 10 | 10% | 100 | BJI Int. | 10.875 | Kia Dentsu † | 30 | 1000 | - | (2½) | 100 | Credit Suisse | - |
| Tenneco Corp. † | 150 | 1989 | 4 | 11½ | 100 | Mgn. Stanley | 11.500 | KLM (a) † | 200 | - | - | (6½) | - | Kreditbank (Swiss) | - |
| Ford Motor Credit † | 100 | 1990 | 5 | 11% | 99½ | Goldman Sachs | 11.400 | | | | | | | | |
| Ford Motor Credit † | 100 | 1995 | 10 | 12 | 99% | Goldman Sachs | 12.067 | STERLING | | | | | | | |
| Danmark † | 100 | 1992 | 7 | 11½ | 100% | Country Bank | 11.446 | Mortgage Intermediary (a) † | 50 | 2010 | 7-8 | ¾ | 100 | Mgn. Grenfell | - |
| Banque Indusuisse † | 100 | 1992 | 7½ | 11% | 100 | CSFB | 11.625 | American Medical Int. † | 40 | 1995 | 10 | 11½ | 100 | Barclays Merchant Bk. | 11.250 |
| Export Finance † | 100 | 1992 | 7 | 11% | 100 | Chase Manhattan | 10.462 | | | | | | | | |
| G. E. Credit (a) † | 200 | 1990 | 5 | 10% | 99.575 | Mgn. Stanley | 10.462 | ECU | | | | | | | |
| Santany † | 100 | 1988 | 3 | 10% | 100% | Mgn. Stanley | 10.699 | PBA † | | | | | | | |
| Austria (a) † | 20 | 1992 | 7 | (11½) | 100.15 | Dalmeida Bros. | - | 8. Naz. Agriculture | 50 | 1992 | 7 | 0% | 100% | Bge Paribas | 9.600 |
| Autos (a) † | 115 | 1995 | 10 | 11% | 98% | S. G. Warburg | 11.466 | | | | | | | | |
| Citicorp † | 100 | 1982 | 7 | 11% | 99% | Salomon Bros. | 11.804 | | | | | | | | |
| World Bank † | 300 | 1992 | 7 | 11 | 99½ | Deutsche Bank | 11.107 | YEN | | | | | | | |
| New England Life † | 58,725 | 1992 | 4.2 | 11½ | 100% | Salomon Bros. | 11.500 | Int'l † | 12.5m | 1992 | 7 | 6% | 99% | Citicorp, Int. | 6.671 |
| New England Life † | 149.09 | 1995 | 9.2 | 11% | 100 | Salomon Bros. | 11.750 | EDF † | 20m | 1995 | 10 | 6% | 100 | Dalmeida Bros. | 6.875 |
| New England Life † | 89.85 | 1989 | 14 | 0 | 20.40 | Salomon Bros. | 11.000 | EDF † | 30m | 1995 | 9 | 6.7 | 99.5 | Nomura Secs | 6.755 |
| Met. Bank of Hungary (a) † | 100 | 2000 | 15 | ¼ | 100 | Nomura Int. | - | | | | | | | | |
| Sumitomo Corp. † | 100 | 1992 | 7 | 10% | 100 | Goldman Sachs | 10.625 | GULDBERG | | | | | | | |
| Chugoku Elec. Power † | 50 | 1992 | 7 | 10% | 100 | Nikko Secs (Eur) | 10.875 | ADB † | 200 | 1995 | 8 | 7% | 100 | ABN, AmRo | 7.750 |
| Mitsubishi Corp. † | 200 | 1995 | 10 | 10% | 100 | Merrill Lynch | 10.625 | ADB † | 100 | 1990 | 5 | 7 | 99% | AmRo, ABN | 7.061 |
| CANADIAN DOLLARS | | | | | | | | FRENCH FRANCES | | | | | | | |
| Zentralbank † | 50 | 1995 | 10 | 11% | 100 | Orion Royal Bank | 11.875 | EEC † | 1m | 1997 | 12 | 12.3 | 100 | Bge Paribas | 12.300 |
| City of Quebec (a) † | 45 | 1992 | 7 | 11½ | 100% | Orion Royal Bank | 11.473 | | | | | | | | |
| Australian Res. Dev. Bk. † | 50 | 1992 | 7 | 11% | 100 | SBCI | 11.625 | LUXEMBOURG FRANCES | | | | | | | |
| Prov. of New Scotia † | 100 | 1995 | 10 | 11% | 100% | Orion Royal Bank | 11.535 | EEC † | 1m | 1995 | 10 | 9½ | 100 | Bge Generale de Lux. | 9.500 |
| Denmark † | 100 | 1991 | 5 | 11% | 100% | Merrill Lynch | 11.585 | BELGIUM FRANCES | | | | | | | |
| | | | | | | | | EEC † | 2m | 2000 | 11 | 11% | 99% | Bge de Benelux | 11.752 |
| D-MARKS | | | | | | | | | | | | | | | |
| Fickard † | 200 | 1992 | 7 | 7 | 100 | Deutsche Bank | 7.000 | | | | | | | | |
| City of Copenhagen † | 150 | 1995 | 8 | 7½ | 100 | Deutsche Bank | 7.375 | | | | | | | | |
| ECSC † | 84 | 1992 | 6.55 | 7½ | 100 | Commerzbank | 7.125 | | | | | | | | |
| CEPAC † | 200 | 1997 | 12 | 7½ | 99½ | Commerzbank | 7.314 | | | | | | | | |
| Intend † | 200 | 1995 | 10 | 7½ | 100 | Commerzbank | 7.375 | | | | | | | | |

* Not yet priced. † Fixed terms. ** Private placement. ‡ Convertible. † Floating-rate note. † With equity warrants. (a) 1½ over 3-m Libor. (b) ¼ over 6-m Libor. (c) ¾ over 3-m Libor. (d) Extensible to 2000. (e) Extensible to 1994. (f) \$85m additional tap. (g) ¼ over 6-m Libor. (h) Perpetual, refund after 10 years. Note: Yields are calculated on ABB basis.

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November 14, 1984

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INTERNATIONAL CAPITAL MARKETS

U.S. MONEY AND CREDIT

Uncertainties keep investors ultra-cautious

INVESTORS in the U.S. government bond market are playing it safe. They are beset by uncertainties about the strength of the rebound in U.S. economic activity and how the Fed will respond to the apparent pick-up in monetary growth, which is coinciding with slumping commodity prices and a record-breaking dollar. They remain ultra-cautious.

This is most evident in the widening of the yield curve in the final quarter of 1984, reflecting the sharp decline in U.S. short-term rates. Long yields have changed little since early November, while short rates have plunged by nearly 150 basis points. The result is a sharply positive sloping yield curve and an all-time record 238 basis point gap between one and seven year yields.

This trend continued last week as money market rates fell by between 5 and 15 basis points, while the yield on the 30-year bond fell just 4 basis points and the Treasury long bond yield, with the price stuck on 101, was unchanged at 12.62 per cent. Market nervousness has been heightened in recent weeks by a series of developments.

U.S. MONEY MARKET RATES (%)

| | Last Friday | 1 week ago | 4 wks ago | 12-month Low |
|----------------------------|-------------|------------|-----------|--------------|
| Fed Funds (weekly average) | 8.21 | 8.77 | 8.55 | 11.77 |
| Three-month Treasury bills | 7.77 | 7.82 | 8.08 | 10.77 |
| Six-month Treasury bills | 8.05 | 8.15 | 8.25 | 10.83 |
| Three-month prime rate | 8.20 | 8.25 | 8.55 | 11.80 |
| 90-day Commercial Paper | 7.90 | 8.10 | 8.50 | 11.38 |
| 90-day Commercial Paper | 8.00 | 8.20 | 8.55 | 11.40 |

U.S. BOND PRICES AND YIELDS (%)

| | Last Friday | 1 week ago | 4 wks ago | 12-month Low |
|---------------------------|-------------|------------|-----------|--------------|
| Seven-year Treasury | 100 1/4 | 100 1/4 | 100 1/4 | 100 1/4 |
| 20-year Treasury | 98 1/4 | 98 1/4 | 98 1/4 | 98 1/4 |
| 30-year Treasury | 101 1/4 | 101 1/4 | 101 1/4 | 101 1/4 |
| New 15-year "A" Financial | N/A | 11.82 | 11.82 | 11.82 |
| New "AA" Long utility | N/A | 12.30 | 12.30 | 12.30 |
| New "AA" Long industrial | N/A | 12.75 | 12.75 | 12.75 |

Money Supply: In the week ended December 31 M1 fell by \$500m to \$657.2bn from an upwardly revised \$657.7bn. In December M2 increased by \$25.2bn to \$2,375.5bn and M3 by \$25.6bn to \$3,289.6bn from the previous month.

First, as was to be expected after the recent shift in Fed monetary policy towards more accommodation, the money aggregates have bounced back. Also, as the reaction to last week's smaller than expected \$500m M1 decline showed, the markets have once again become extremely jittery about the weekly number.

M1 and M2 rose at annualised rates of 10.7 per cent and 14.8

per cent respectively in December. While both money supply measures remain within the Fed's current targets (M2 by a mere \$50m) most economists expect further gains. "The December levels are sufficiently high that in the face of strong reserve growth, above-target monetary growth is likely in the early months of 1985," says Mr Frank Marquardt of Smith, Barney.

Second, there is growing evidence of some accompanying rebound in economic activity—although the signals remain mixed.

A flood of December economic data is due out this week and, as Dr Henry Kaufman of Salomon Brothers notes: "December employment gains suggest associated increases in personal income and industrial production. Therefore the market will be watching for the trends in retail sales and consumption due out this week."

If strong, they would indicate the probable drawdown of the inventory overhang and confirm the growing sense that the economic slowdown is past.

Third, because of special seasonal factors, little can be read into the Fed's recent open market activities—like the system repurchase agreements arranged on Friday, when the Fed funds rate threatened to break new ground.

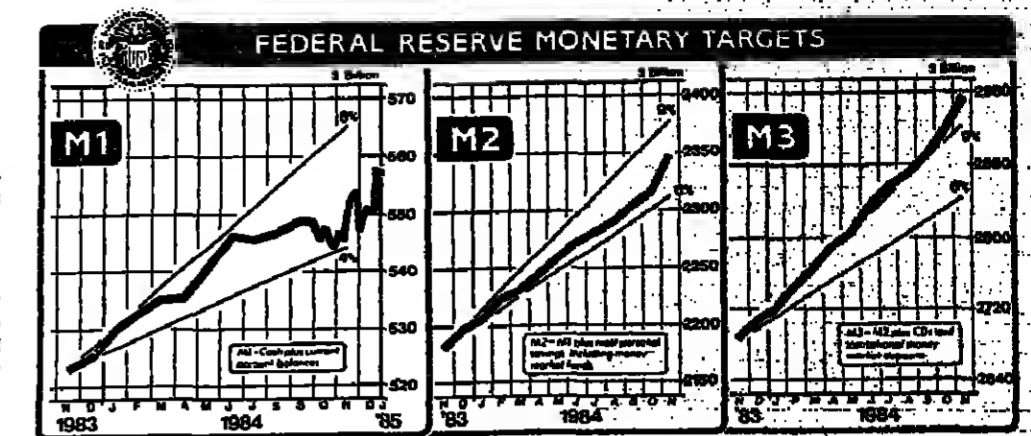
Faced with a lack of clear pointers towards Fed intentions, the markets have turned inward to speculation—including some about the implications of the cabinet changes an-

nounced last week and in particular about the shift to the White House of Long-time Federal Reserve Chairman Paul Volcker, the Fed chairman, last week gave nothing away. Indeed, some economists suggested that the Fed chairman appeared to have deliberately set out to avoid new themes.

Nevertheless, the equity markets, and the credit markets to a lesser extent, found something to cheer about in Mr Volcker's positive statements about retreating inflationary expectations and the added "flexibility" that the strong dollar afforded the monetary authorities.

Trained at the bottom line, it is the Fed's reaction to the same uncertainties which currently dog the markets that will determine the outcome of the current "price" impasse.

On this issue Wall Street is



deeply split, although those economists who believe the Fed will ease further because of deflationary concerns and other factors—irrespective of a pick-up in the domestic economy—probably still hold sway.

"At the very least," says Mr Philip Braverman of Briggs Schaefer, "it seems probable that the Fed will keep policy unchanged for an extended period, despite the rebound in economic and monetary growth."

The volatile and nervous nature of the U.S. markets was also apparent last week in the corporate sector, where prices fell by 1 of a point and 3 of a point on medium and long-term issues respectively. But new issue yield declined, perhaps reflecting the current shortage of supply.

New issue rates on medium-term issues were unchanged to 10 basis points lower while long-term issues fell by up to 15 basis points.

Last week saw \$400m of new paper come to market compared to zero the preceding week. In the first two weeks of last year volume totalled \$2.5bn, according to First Boston figures. Among the new issues Boise Cascade added \$100m of eight-year notes to yield 12 per cent. Zenith Electronics offered \$75m of 10-year 12 1/2 per cent paper, priced to yield 12.19 per cent.

Paul Taylor

UK GILTS

Slide in sterling ends earlier euphoria

THE EUPHORIA was short-lived. The initial surge in gilt prices last week followed better than expected money supply figures was quickly reversed by the impact of sterling's slide.

The pound's failure to react to the rise in base rates to 10 1/2 per cent on Friday left many wondering whether this week might see an action replay of events last July, when rates rose by 21 points in two stages.

Yields for long-dated stocks, which had fallen to 10.35 per cent in the immediate aftermath of Tuesday's money supply figures, were back up to over 10.5 per cent by Friday's close.

The authorities' decision to hold back from any new funding tempered only slightly the slump in confidence.

The rise in rates, following two weeks in which the Treasury and Bank of England had been intent on resisting such a move, confirmed the suspicions of many that sterling's weakness could not be blamed simply on dollar strength and falling oil prices.

The money figures, showing a 3 per cent drop in sterling M3 which took it back to the top of its 6 to 10 per cent target range, at first brought gains of 10 points or so at the long end of the market.

The message from the exchange rate, however, was that money was far from tight, a view given added weight by the strength of bank lending during December.

And the perception—at least until Friday—that the Government was prepared to take risks with sterling rather than push up interest rates added to the market's nervousness.

By yesterday it had become clear that the Government is worried about the pound's slide, and ready to see another rise in base rates if it continues.

Whether this concern will in itself be enough to bolster confidence is far from certain, although the authorities are hoping that firmer oil prices and the possibility of lower U.S. interest rates could put at

least a temporary prop under sterling.

If not, many brokers expect a repeat of July, with yields moving up to 11 per cent or so before the Government is able to resume its funding operations.

Last week in fact saw the first official gilt sales since early December, as the Government broker took advantage of the favourable reaction to the money supply figures to sell out of the 9 1/2 per cent Exchequer 1988 tax stock.

The sales, however, amounted only to an estimated \$75m, hardly sufficient to bave any significant impact on sterling M3 in the January banking month which ends on this coming Wednesday.

The Government broker now has only three specialist stocks on offer—the index-linked 2 1/2 per cent Treasury 2001, the index-linked 2 1/2 per cent Treasury 2011, and the conventional 2 1/2 per cent Exchequer 1987.

Until the rise in base rates, the market had expected the authorities to supplement these

by announcing the issue of a series of new tranches of existing stock.

Sterling's fall below \$1.12 on Friday afternoon obviously persuaded them that such a move would only have unsettled the market further. If calm were to be restored early this week, however, it should anyway be able to issue some new stocks before Wednesday.

But the present gloom in the gilt-edged market should not be overstated. Those looking at events last July will remember that the recovery in the market was almost as rapid as its fall.

On this occasion the break on any fall is likely to be strengthened by buoyant institution liquidity, and by the fact that U.S. interest rates have dropped dramatically since the middle of last year.

There is also, of course, at least a chance that the Government's more concerned attitude to the exchange rate could restore confidence, or that a further 7-11 of cold weather will come to the rescue.

Philip Stephens

NEW ISSUE

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JANUARY 1985

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STRAIGHT BONDS: Yield to redemption of the mid-price. Amount issued is expressed in millions of currency units except for yen bonds, where it is in billions.

FLOATING RATE NOTES: U.S. dollars unless indicated. Margin above six-month offered rate (if three-month; 5 above mean rate) for U.S. dollars. C.c.p.m.—current coupon.

CONVERTIBLE BONDS: U.S. dollars unless indicated. Prem—percentage premium of the current effective price of buying shares via the bond over the most recent share price.

WARRANTS: Equity warrant prem—exercise premium over current share price. Bond warrant ex-yld—exercise yield at current market price.

Closing prices on January 11

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INTERNATIONAL CAPITAL MARKETS AND COMPANIES

BANKING SUPERVISION

Soft centres hold up hard line regulation

DESPITE all the shocks that have buffeted the international banking industry in the last few years, there have been remarkably few banking casualties. Is this thanks to good luck or good management?

Bankers and their supervisors are bound to argue in favour of the latter. Yet the fact is that international banking — probably the most global business there is — is remarkably lightly regulated: its highest activities, foreign exchange and the Euro-markets, operate virtually free from control. And what regulation there is tends to be patchy, some international financial centres are tightly supervised, others are not. All of which should be worrying if you

believe that banks need to be protected not just from a hostile world, but from their own competitive excesses.

Dr Richard Dale, the author of a new book ("On international bank regulation, believes they should be. He thinks it is very hard for even the best-run banks to stand back from new or fast-growing markets at the risk of losing market share. The growing sophistication and interdependence of modern banking also increase both the dangers and the risk of contagion from bank failures.

Dr Dale is especially concerned about what he calls "regulatory arbitrage": the temptation for banks to set up shop — or

channel business through branches — in the most leniently regulated financial centres. The classic instance of this, which he documents in detail, was Citibank's "risky dink" foreign exchange dealings in the 1970s, which landed it in trouble with the authorities of several countries.

But Dr Dale, a London merchant banker, who spent a year at the Brookings Institution in Washington while researching his book, is not just out to clobber the big banks. This is one of the fullest and most cogently argued cases for better international bank regulation. He examines the regulatory state of play in all the big financial centres, and probes the causes

of such celebrated collapses as Herstatt, Ambrosiano, Schroeder Moenchmeyer, Hengst and Franklin National, all of which, he says, carry the ominous message that the present "ad hoc co-ordination of national support arrangements might not be sufficient to contain the threatened collapse of a major multinational bank."

As this conclusion implies, Dr Dale does not believe that the Basle Concordate (under which international bank supervisors try to ensure that multinational banks do not escape regulation) is sufficient because it does not enable "hard" financial centres to force "soft" centres out of business. True, Basle is leading to convergence of supervisory

standards, while other measures like consolidated accounting make it harder for banks to channel questionable business through unreported foreign subsidiaries.

Whether or not the "formal legal framework" which Dr Dale thinks is the only remedy is a practical proposition, it is clear that international banking has evolved to the stage where it must be treated as a single market, rather than a collection of separate centres which vie with each other by touting regulatory, tax and accounting incentives.

The regulation of international banking. By Richard Dale. Woodhead-Faulkner, 208 pages, £19.95.

David Lascelles

FFr 3.7bn return to black for DGT

By Paul Betts and Guy de Jonquieres in Paris

THE FRENCH telecommunications authority (Direction Generale des Telecommunications — DGT) will later this week report net earnings of about FFr 3.7bn (\$382m) for 1984 after losing nearly FFr 1bn in 1983.

The loss in 1983 was the first to be reported by DGT since separate accounts for telecommunications started being kept in France 25 years ago.

The return to profit reflects the exceptional 25 per cent rate increases granted last year by the Socialist Government. These accounted for FFr 1.8bn of last year's earnings. The balance was made up of productivity gains, increased volume and new products.

At the same time, provisions against foreign currency debts were lower. In 1983 these totalled about FFr 5bn while they are expected to amount to between FFr 2bn and FFr 3bn last year. About one third of DGT's FFr 115bn total debt is denominated in U.S. dollars.

Sales rose to FFr 72bn from FFr 61.2bn the year before. But if the net figures DGT will announce this week show a return into the black, they do not take into account the new role the authority has assumed under the socialist administration of financing the French electronics industry.

Indeed, DGT for the first time last year financed the French electronics industry to the tune of FFr 3.4bn, of which about half involved support for the development of new products and the other half helped to plug the deficits and losses of the nationalised Bull, Thomson Telecommunications, and CGCT groups.

Moreover, DGT contributed FFr 2.1bn to the French Government budget. It made a first contribution of FFr 2bn to the government budget in 1983.

Thus if the state budget contribution and the financial support of the electronics industry are taken into account, DGT was again in the red last year with a loss of nearly FFr 2bn.

INTERNATIONAL APPOINTMENTS

Travelers president suddenly resigns

BY PAUL TAYLOR IN NEW YORK

MR ALVA WAY, president of Travelers Corporation, the third largest stockholder-owned multi-line insurance group in the U.S., has resigned citing "personal reasons." Mr Edward Budd, aged 51, chairman and chief executive of the Hartford, Connecticut-based insurance group, will assume the additional title of president.

Mr Way, aged 55, who quit as president of American Express in 1983 to take the number two job at Travelers, will remain a director of Travelers and act as a consultant to the group. Before joining American Express he had spent 23 years at General Electric, becoming senior vice-president in charge of finance in 1977.

The move stunned Wall Street and the industry. Mr Way had been the company's main spokesman and was generally viewed to hold a strong leadership position at Travelers. The company has managed to avoid some of the worst problems of the U.S. property/casualty industry in sharp contrast to many other major insurers.

New chief marks change of policy at Fairchild

BY LOUISE KEHOE IN SAN FRANCISCO

FAIRCHILD Camera and Instrument Corporation, the Californian Silicon Valley semiconductor company, is set to pare down its troubled operations and to adopt a less abrasive management style. This marks an attempt to return to sustained profitability, according to Mr Donald Brooks, its newly-named president and chief executive and a former executive of Texas Instruments, the largest U.S. semiconductor maker.

Mr Brooks joined Fairchild, a subsidiary of Schlumberger, the international oil services group, 20 months ago as manager of North American operations. In his new position he succeeds Mr Thomas Roberts, who was installed at Fairchild when Schlumberger acquired the company in 1979.

Mr Brooks' appointment marks a break with Schlumberger's previous policy of filling Fairchild management positions with its own executives. Mr Brooks is a 26-year veteran of Texas Instruments. As senior vice-president and general manager of Texas Instruments' MOS (metal oxide semiconductor) operations, he was the driving force in that company's expansion of its CMOS (complementary metal oxide semiconductor) product line.

Mr Brooks' very willingness to talk publicly about Fairchild is in marked contrast with the style of his predecessor.

Mr Roberts maintained a low profile during his five years in Silicon Valley. His actions were, however, controversial. Fairchild lost many of its top managers during Mr Roberts' tenure, reportedly because of a clash with his rigid management style.

Olson to quit Carnation

MR H EVERETT OLSON, 78-year-old chief executive officer of CARNATION, has announced his resignation in a move expected to produce a more aggressive marketing strategy at the Los Angeles food products group, writes Andrew Baxter in New York.

He will be succeeded by Mr Timm Crull, the 54-year-old president, who has for some time been considered Mr Olson's heir apparent. Mr Olson will resign as chief executive on February 1 but will continue as chairman until December 31.

Mr Olson has decided to retire this year before the company's acquisition by Nestle, the Swiss foods group, for \$3bn. "Now that the merger has been approved, I feel this is the most appropriate time for my retirement," he said.

Mobil prepares defence against unwelcome bids

By Andrew Baxter in New York

MOBIL, THE second highest U.S. oil company, is to seek approval from shareholders for changes in its corporate bylaws which will make it more difficult for unwelcome suitors to win a takeover battle.

The move comes amid speculation on Wall Street that Mr T. Boone Pickens, the Texas oil specialist, may try to take control of Mobil or another big U.S. oil company following the "standstill" agreement he reached with Philip Petroleum earlier this month after a three-week takeover attempt.

Mobil, which Mr Pickens has listed among a group of undervalued oil companies, will call a special meeting of shareholders on February 22 to recommend the changes, which are understood to include:

- Amending the company's certificate of incorporation to prevent "greenmail" (the purchase by a company of its own shares from a predator group at a price that is not offered to other shareholders);
- Approval by 80 per cent of the voting stock for unfriendly mergers. Changing or repealing this amendment would also require approval from 80 per cent of the stock;

Mobil stressed yesterday that its proxy document detailing the recommended changes, which has been filed with the U.S. Securities and Exchange Commission, does not mention Mr Pickens.

KLM issues SwFr 200m undated bond

BY MAGGIE URRY

IN an innovative deal, KLM, the Dutch airline, is raising SwFr 200m through an undated bond issue. This is the first time a foreign borrower has made such an issue in Switzerland and the first perpetual issue made by a borrower in the international bond markets other than a country or a bank.

The money raised will only be repaid if KLM goes into liquidation. As such it can be viewed by KLM almost as equity capital. The proceeds will go towards the airline's heavy

investment programme over the next five years.

The issue, which will go on public sale in Switzerland on January 21, is being arranged by Kredietbank (Swiss). A heavy demand for the bonds is expected.

KLM, which is 55.4 per cent owned by the Dutch government, is regarded as a good credit risk. The initial yield being offered on the bonds, at 6 1/2 per cent, is higher than KLM would have had to pay for a 10-year bond issue on the Swiss

franc foreign bond market, so KLM is paying up for the privilege of selling undated bonds.

Every 10 years the interest payment will be reset according to a formula based on other foreign bond yields in Switzerland, which at current levels would suggest a yield of around 5 1/2 per cent. At the end of each 10-year period KLM can opt to redeem the issue, but investors do not have the right to ask for a redemption.

By issuing undated paper,

KLM can avoid the costs of making a new issue in future no refinancing bonds which mature.

● In another development in the Swiss bond market, Sweden is selling around SwFr 100m of bonds with an 18-month life by tender. Previously only the Swiss Government and the cantons have sold issues by tender. The yield has been set at 4 1/2 per cent and the issue size can be reduced or increased by 25 per cent. The tender is being organised by Swiss Bank Corporation.

Swiss court to rule on Nova-Park meeting date

BY JOHN WICKS IN ZURICH

THE LEGAL battle over the future of Nova-Park, the Swiss-based hotel group, enters a new phase today, when a Zurich judge is expected to rule whether an early extraordinary general meeting must be held, as requested by a group of dissident shareholders.

The group, headed by Dr Arthur Bezzola, Nova-Park's former managing director, and representing about one-third of the company's share capital, called on December 28 for the meeting to be held on January 15. The applicants will now ask the court to convene the meeting as soon as possible.

The Bezzola group, which includes several representatives of Middle Eastern shareholders, wants the company to set up a supervisory board to oversee the activities of the directors.

The Nova-Park board has in the meantime invited shareholders to an annual general meeting — its first since December 1983 — in Paris on January 28.

This is intended as an opportunity for the board to present the 1983 report, as well as details of the Nova-Park hotels in Paris and New York and a building project in Cairo.

Semiconductor downturn affects AMD results

BY OUR NEW YORK STAFF

THIRD-QUARTER net profits at Advanced Micro Devices, the California-based microprocessor manufacturer, have fallen sharply from the record levels of the previous three months, providing further evidence of the current downturn in the worldwide semiconductor industry.

Net income for the quarter ended December 31 was \$29.3m or 50 cents a share, up from \$20.2m or 35 cents a year ago but down from \$42.1m or 72 cents in the second quarter. Sales rose 54 per cent to \$238.6m from \$155.6m a year ago, but were down 7 per cent from \$257.1m in the previous

three months. Nine-month net earnings were up from \$40.5m or 70 cents a share in 1983 to \$109.6m or \$1.88, while sales jumped from \$391.1m to \$730m.

Mr Jerry Sanders, president and chief executive, said: "The just-completed quarter bore witness to the mercurial nature of demand in the worldwide semiconductor industry. Customers large and small dramatically curtailed orders, cancelled backlog and renegotiated pricing as reduced expectations, ballooning inventories, and shortened lead times marked an abrupt transition from shortages to surpluses."

NEWISSUE

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Can. \$100,000,000



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December, 1984

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Agent

THE CHASE MANHATTAN BANK, N.A.

DECEMBER 1984

Closing prices, January 11

Continued on Page 26

NEW YORK STOCK EXCHANGE COMPOSITE CLOSING PRICES

[illegible]

WORLD STOCK MARKETS

OVER-THE-COUNTER

Nasdaq national market, closing prices January 11

| Stock | Sales | High | Low | Last | Chg | Stock | Sales | High | Low | Last | Chg |
|-------|-------|----------------------|-----------------------|-----------------------|------------------------|-------|-------|----------------------|----------------------|----------------------|-----------------------|
| ABX | 27 | 20 1/2 | 20 1/4 | 20 1/4 | -1/4 | ABX | 27 | 20 1/2 | 20 1/4 | 20 1/4 | -1/4 |
| AD | 30 | 19 1/2 | 19 1/4 | 19 1/4 | -1/4 | AD | 30 | 19 1/2 | 19 1/4 | 19 1/4 | -1/4 |
| AG | 44 | 18 1/2 | 18 1/4 | 18 1/4 | -1/4 | AG | 44 | 18 1/2 | 18 1/4 | 18 1/4 | -1/4 |
| AK | 10 | 17 1/2 | 17 1/4 | 17 1/4 | -1/4 | AK | 10 | 17 1/2 | 17 1/4 | 17 1/4 | -1/4 |
| AL | 20 | 16 1/2 | 16 1/4 | 16 1/4 | -1/4 | AL | 20 | 16 1/2 | 16 1/4 | 16 1/4 | -1/4 |
| AM | 30 | 15 1/2 | 15 1/4 | 15 1/4 | -1/4 | AM | 30 | 15 1/2 | 15 1/4 | 15 1/4 | -1/4 |
| AN | 40 | 14 1/2 | 14 1/4 | 14 1/4 | -1/4 | AN | 40 | 14 1/2 | 14 1/4 | 14 1/4 | -1/4 |
| AO | 50 | 13 1/2 | 13 1/4 | 13 1/4 | -1/4 | AO | 50 | 13 1/2 | 13 1/4 | 13 1/4 | -1/4 |
| AP | 60 | 12 1/2 | 12 1/4 | 12 1/4 | -1/4 | AP | 60 | 12 1/2 | 12 1/4 | 12 1/4 | -1/4 |
| AR | 70 | 11 1/2 | 11 1/4 | 11 1/4 | -1/4 | AR | 70 | 11 1/2 | 11 1/4 | 11 1/4 | -1/4 |
| AS | 80 | 10 1/2 | 10 1/4 | 10 1/4 | -1/4 | AS | 80 | 10 1/2 | 10 1/4 | 10 1/4 | -1/4 |
| AT | 90 | 9 1/2 | 9 1/4 | 9 1/4 | -1/4 | AT | 90 | 9 1/2 | 9 1/4 | 9 1/4 | -1/4 |
| AV | 100 | 8 1/2 | 8 1/4 | 8 1/4 | -1/4 | AV | 100 | 8 1/2 | 8 1/4 | 8 1/4 | -1/4 |
| AW | 110 | 7 1/2 | 7 1/4 | 7 1/4 | -1/4 | AW | 110 | 7 1/2 | 7 1/4 | 7 1/4 | -1/4 |
| AX | 120 | 6 1/2 | 6 1/4 | 6 1/4 | -1/4 | AX | 120 | 6 1/2 | 6 1/4 | 6 1/4 | -1/4 |
| AY | 130 | 5 1/2 | 5 1/4 | 5 1/4 | -1/4 | AY | 130 | 5 1/2 | 5 1/4 | 5 1/4 | -1/4 |
| AZ | 140 | 4 1/2 | 4 1/4 | 4 1/4 | -1/4 | AZ | 140 | 4 1/2 | 4 1/4 | 4 1/4 | -1/4 |
| BA | 150 | 3 1/2 | 3 1/4 | 3 1/4 | -1/4 | BA | 150 | 3 1/2 | 3 1/4 | 3 1/4 | -1/4 |
| BB | 160 | 2 1/2 | 2 1/4 | 2 1/4 | -1/4 | BB | 160 | 2 1/2 | 2 1/4 | 2 1/4 | -1/4 |
| BC | 170 | 1 1/2 | 1 1/4 | 1 1/4 | -1/4 | BC | 170 | 1 1/2 | 1 1/4 | 1 1/4 | -1/4 |
| BD | 180 | 1/2 | 1/4 | 1/4 | -1/4 | BD | 180 | 1/2 | 1/4 | 1/4 | -1/4 |
| BE | 190 | 1/4 | 1/8 | 1/8 | -1/8 | BE | 190 | 1/4 | 1/8 | 1/8 | -1/8 |
| BF | 200 | 1/8 | 1/16 | 1/16 | -1/16 | BF | 200 | 1/8 | 1/16 | 1/16 | -1/16 |
| BG | 210 | 1/16 | 1/32 | 1/32 | -1/32 | BG | 210 | 1/16 | 1/32 | 1/32 | -1/32 |
| BH | 220 | 1/32 | 1/64 | 1/64 | -1/64 | BH | 220 | 1/32 | 1/64 | 1/64 | -1/64 |
| BI | 230 | 1/64 | 1/128 | 1/128 | -1/128 | BI | 230 | 1/64 | 1/128 | 1/128 | -1/128 |
| BJ | 240 | 1/128 | 1/256 | 1/256 | -1/256 | BJ | 240 | 1/128 | 1/256 | 1/256 | -1/256 |
| BK | 250 | 1/256 | 1/512 | 1/512 | -1/512 | BK | 250 | 1/256 | 1/512 | 1/512 | -1/512 |
| BL | 260 | 1/512 | 1/1024 | 1/1024 | -1/1024 | BL | 260 | 1/512 | 1/1024 | 1/1024 | -1/1024 |
| BM | 270 | 1/1024 | 1/2048 | 1/2048 | -1/2048 | BM | 270 | 1/1024 | 1/2048 | 1/2048 | -1/2048 |
| BN | 280 | 1/2048 | 1/4096 | 1/4096 | -1/4096 | BN | 280 | 1/2048 | 1/4096 | 1/4096 | -1/4096 |
| BO | 290 | 1/4096 | 1/8192 | 1/8192 | -1/8192 | BO | 290 | 1/4096 | 1/8192 | 1/8192 | -1/8192 |
| BP | 300 | 1/8192 | 1/16384 | 1/16384 | -1/16384 | BP | 300 | 1/8192 | 1/16384 | 1/16384 | -1/16384 |
| BQ | 310 | 1/16384 | 1/32768 | 1/32768 | -1/32768 | BQ | 310 | 1/16384 | 1/32768 | 1/32768 | -1/32768 |
| BR | 320 | 1/32768 | 1/65536 | 1/65536 | -1/65536 | BR | 320 | 1/32768 | 1/65536 | 1/65536 | -1/65536 |
| BS | 330 | 1/65536 | 1/131072 | 1/131072 | -1/131072 | BS | 330 | 1/65536 | 1/131072 | 1/131072 | -1/131072 |
| BT | 340 | 1/131072 | 1/262144 | 1/262144 | -1/262144 | BT | 340 | 1/131072 | 1/262144 | 1/262144 | -1/262144 |
| BU | 350 | 1/262144 | 1/524288 | 1/524288 | -1/524288 | BU | 350 | 1/262144 | 1/524288 | 1/524288 | -1/524288 |
| BV | 360 | 1/524288 | 1/1048576 | 1/1048576 | -1/1048576 | BV | 360 | 1/524288 | 1/1048576 | 1/1048576 | -1/1048576 |
| BW | 370 | 1/1048576 | 1/2097152 | 1/2097152 | -1/2097152 | BW | 370 | 1/1048576 | 1/2097152 | 1/2097152 | -1/2097152 |
| BX | 380 | 1/2097152 | 1/4194304 | 1/4194304 | -1/4194304 | BX | 380 | 1/2097152 | 1/4194304 | 1/4194304 | -1/4194304 |
| BY | 390 | 1/4194304 | 1/8388608 | 1/8388608 | -1/8388608 | BY | 390 | 1/4194304 | 1/8388608 | 1/8388608 | -1/8388608 |
| BZ | 400 | 1/8388608 | 1/16777216 | 1/16777216 | -1/16777216 | BZ | 400 | 1/8388608 | 1/16777216 | 1/16777216 | -1/16777216 |
| CA | 410 | 1/16777216 | 1/33554432 | 1/33554432 | -1/33554432 | CA | 410 | 1/16777216 | 1/33554432 | 1/33554432 | -1/33554432 |
| CB | 420 | 1/33554432 | 1/67108864 | 1/67108864 | -1/67108864 | CB | 420 | 1/33554432 | 1/67108864 | 1/67108864 | -1/67108864 |
| CC | 430 | 1/67108864 | 1/134217728 | 1/134217728 | -1/134217728 | CC | 430 | 1/67108864 | 1/134217728 | 1/134217728 | -1/134217728 |
| CD | 440 | 1/134217728 | 1/268435456 | 1/268435456 | -1/268435456 | CD | 440 | 1/134217728 | 1/268435456 | 1/268435456 | -1/268435456 |
| CE | 450 | 1/268435456 | 1/536870912 | 1/536870912 | -1/536870912 | CE | 450 | 1/268435456 | 1/536870912 | 1/536870912 | -1/536870912 |
| CF | 460 | 1/536870912 | 1/1073741824 | 1/1073741824 | -1/1073741824 | CF | 460 | 1/536870912 | 1/1073741824 | 1/1073741824 | -1/1073741824 |
| CG | 470 | 1/1073741824 | 1/2147483648 | 1/2147483648 | -1/2147483648 | CG | 470 | 1/1073741824 | 1/2147483648 | 1/2147483648 | -1/2147483648 |
| CH | 480 | 1/2147483648 | 1/4294967296 | 1/4294967296 | -1/4294967296 | CH | 480 | 1/2147483648 | 1/4294967296 | 1/4294967296 | -1/4294967296 |
| CI | 490 | 1/4294967296 | 1/8589934592 | 1/8589934592 | -1/8589934592 | CI | 490 | 1/4294967296 | 1/8589934592 | 1/8589934592 | -1/8589934592 |
| CJ | 500 | 1/8589934592 | 1/17179869184 | 1/17179869184 | -1/17179869184 | CJ | 500 | 1/8589934592 | 1/17179869184 | 1/17179869184 | -1/17179869184 |
| CK | 510 | 1/17179869184 | 1/34359738368 | 1/34359738368 | -1/34359738368 | CK | 510 | 1/17179869184 | 1/34359738368 | 1/34359738368 | -1/34359738368 |
| CL | 520 | 1/34359738368 | 1/68719476736 | 1/68719476736 | -1/68719476736 | CL | 520 | 1/34359738368 | 1/68719476736 | 1/68719476736 | -1/68719476736 |
| CM | 530 | 1/68719476736 | 1/137438953472 | 1/137438953472 | -1/137438953472 | CM | 530 | 1/68719476736 | 1/137438953472 | 1/137438953472 | -1/137438953472 |
| CN | 540 | 1/137438953472 | 1/274877906944 | 1/274877906944 | -1/274877906944 | CN | 540 | 1/137438953472 | 1/274877906944 | 1/274877906944 | -1/274877906944 |
| CO | 550 | 1/274877906944 | 1/549755813888 | 1/549755813888 | -1/549755813888 | CO | 550 | 1/274877906944 | 1/549755813888 | 1/549755813888 | -1/549755813888 |
| CP | 560 | 1/549755813888 | 1/1099511627776 | 1/1099511627776 | -1/1099511627776 | CP | 560 | 1/549755813888 | 1/1099511627776 | 1/1099511627776 | -1/1099511627776 |
| CQ | 570 | 1/1099511627776 | 1/2199023255552 | 1/2199023255552 | -1/2199023255552 | CQ | 570 | 1/1099511627776 | 1/2199023255552 | 1/2199023255552 | -1/2199023255552 |
| CR | 580 | 1/2199023255552 | 1/4398046511104 | 1/4398046511104 | -1/4398046511104 | CR | 580 | 1/2199023255552 | 1/4398046511104 | 1/4398046511104 | -1/4398046511104 |
| CS | 590 | 1/4398046511104 | 1/8796093022208 | 1/8796093022208 | -1/8796093022208 | CS | 590 | 1/4398046511104 | 1/8796093022208 | 1/8796093022208 | -1/8796093022208 |
| CT | 600 | 1/8796093022208 | 1/17592186044416 | 1/17592186044416 | -1/17592186044416 | CT | 600 | 1/8796093022208 | 1/17592186044416 | 1/17592186044416 | -1/17592186044416 |
| CU | 610 | 1/17592186044416 | 1/35184372088832 | 1/35184372088832 | -1/35184372088832 | CU | 610 | 1/17592186044416 | 1/35184372088832 | 1/35184372088832 | -1/35184372088832 |
| CV | 620 | 1/35184372088832 | 1/70368744177664 | 1/70368744177664 | -1/70368744177664 | CV | 620 | 1/35184372088832 | 1/70368744177664 | 1/70368744177664 | -1/70368744177664 |
| CW | 630 | 1/70368744177664 | 1/140737488355328 | 1/140737488355328 | -1/140737488355328 | CW | 630 | 1/70368744177664 | 1/140737488355328 | 1/140737488355328 | -1/140737488355328 |
| CX | 640 | 1/140737488355328 | 1/281474976710656 | 1/281474976710656 | -1/281474976710656 | CX | 640 | 1/140737488355328 | 1/281474976710656 | 1/281474976710656 | -1/281474976710656 |
| CY | 650 | 1/281474976710656 | 1/562949953421312 | 1/562949953421312 | -1/562949953421312 | CY | 650 | 1/281474976710656 | 1/562949953421312 | 1/562949953421312 | -1/562949953421312 |
| CZ | 660 | 1/562949953421312 | 1/1125899906842624 | 1/1125899906842624 | -1/1125899906842624 | CZ | 660 | 1/562949953421312 | 1/1125899906842624 | 1/1125899906842624 | -1/1125899906842624 |
| DA | 670 | 1/1125899906842624 | 1/2251799813685248 | 1/2251799813685248 | -1/2251799813685248 | DA | 670 | 1/1125899906842624 | 1/2251799813685248 | 1/2251799813685248 | -1/2251799813685248 |
| DB | 680 | 1/2251799813685248 | 1/4503599627370496 | 1/4503599627370496 | -1/4503599627370496 | DB | 680 | 1/2251799813685248 | 1/4503599627370496 | 1/4503599627370496 | -1/4503599627370496 |
| DC | 690 | 1/4503599627370496 | 1/9007199254740992 | 1/9007199254740992 | -1/9007199254740992 | DC | 690 | 1/4503599627370496 | 1/9007199254740992 | 1/9007199254740992 | -1/9007199254740992 |
| DD | 700 | 1/9007199254740992 | 1/18014398509481984 | 1/18014398509481984 | -1/18014398509481984 | DD | 700 | 1/9007199254740992 | 1/18014398509481984 | 1/18014398509481984 | -1/18014398509481984 |
| DE | 710 | 1/18014398509481984 | 1/36028797018963968 | 1/36028797018963968 | -1/36028797018963968 | DE | 710 | 1/18014398509481984 | 1/36028797018963968 | 1/36028797018963968 | -1/36028797018963968 |
| DF | 720 | 1/36028797018963968 | 1/72057594037927936 | 1/72057594037927936 | -1/72057594037927936 | DF | 720 | 1/36028797018963968 | 1/72057594037927936 | 1/72057594037927936 | -1/72057594037927936 |
| DG | 730 | 1/72057594037927936 | 1/144115188075855872 | 1/144115188075855872 | -1/144115188075855872 | DG | 730 | 1/72057594037927936 | 1/144115188075855872 | 1/144115188075855872 | -1/144115188075855872 |
| DH | 740 | 1/144115188075855872 | 1/288230376151711744 | 1/288230376151711744 | -1/288230376151711744 | DH | 740 | 1/144115188075855872 | 1/288230376151711744 | 1/288230376151711744 | -1/288230376151711744 |
| DI | 750 | 1/288230376151711744 | 1/576460752303423488 | 1/576460752303423488 | -1/576460752303423488 | DI | 750 | 1/288230376151711744 | 1/576460752303423488 | 1/576460752303423488 | -1/576460752303423488 |
| DJ | 760 | 1/576460752303423488 | 1/1152921504606846976 | 1/1152921504606846976 | -1/1152921504606846976 | DJ | 760 | 1/576460752303423488 | 1/1 | | |

FT UNIT TRUST INFORMATION SERVICE

| | | | |
|---------------------|-----------------|----------------|-------------|
| Overton County | 2,710.4 | 130.7 | +2.1 |
| Sevier County | 2,624.6 | 108.1 | +2.1 |
| Smith County | 2,608.5 | 105.9 | +2.1 |
| Union County | 2,598.8 | 105.4 | +2.1 |
| Van Dyke Co. | 2,598.8 | 105.4 | +2.1 |
| Warren County | 2,598.8 | 105.4 | +2.1 |
| Washington County | 2,598.8 | 105.4 | +2.1 |
| Wayne County | 2,598.8 | 105.4 | +2.1 |
| Westmoreland County | 2,598.8 | 105.4 | +2.1 |
| Wilkes County | 2,598.8 | 105.4 | +2.1 |
| Worcester County | 2,598.8 | 105.4 | +2.1 |
| Total | 21,719.9 | 1,049.3 | +2.1 |

| | | | |
|--------------------------------------|-----------------|----------------|-------------|
| Grainland Unit Assurance Ltd. | | | |
| 2-6, Prince of Wales Rd., B'mouth | | | |
| Managed Fd. | 1,268.7 | 137.4 | +2.1 |
| Money Fd. | 1,655.0 | 177.7 | +2.1 |
| Equity Fd. | 1,655.0 | 177.7 | +2.1 |
| Bond Fd. | 1,655.0 | 177.7 | +2.1 |
| Property Fd. | 1,655.0 | 177.7 | +2.1 |
| Money Pers. Fd. | 1,655.0 | 177.7 | +2.1 |
| Property Pers. Fd. | 1,655.0 | 177.7 | +2.1 |
| Total | 10,179.9 | 1,049.3 | +2.1 |

| | | | |
|--|--------|--------|------|
| Equity Portfolio Fd. | 254.5 | 254.5 | 0.00 |
| Foreign Int. Pfm. Fd. | 177.7 | 177.7 | 0.00 |
| High Yield Pfm. Fd. | 187.3 | 187.3 | 0.00 |
| Int'l. Growth Pfm. Fd. | 142.1 | 142.1 | 0.00 |
| Property Portfolio Fd. | 130.9 | 130.9 | 0.00 |
| Stocks/Bonds/Fundamentals | | | |
| American & Can. Fd. | 241.3 | 241.3 | 0.00 |
| Income Fd. | 254.3 | 254.3 | 0.00 |
| Intl. Growth Fd. | 257.5 | 257.5 | 0.00 |
| Capital Fund. | 133.0 | 133.0 | 0.00 |
| Recovery Fund. | 133.0 | 133.0 | 0.00 |
| Japan & S&P Fd. | 114.4 | 114.4 | 0.00 |
| Growth & Sec. Life Ass. Soc. Ltd. | | | |
| 40, London Place Exchange | 135.29 | 135.29 | 0.00 |
| Flexible Finance | 151.29 | 151.29 | 0.00 |

| | | |
|--------------------|--------|-------|
| London | 195.9 | 191.0 |
| Stock, Acc. | | |
| G. & S. Secur. Pd. | 211.99 | |

| | | |
|---------------------------------|-------|-------|
| Guarantin Royal Exchange | | |
| Royal Exchange, E.C.3. | | |
| 01-28 | | |
| Guarantin Assurance | | |
| Property Bonds | 129.6 | 343.3 |
| SSE United Life Assurance Ltd. | | |
| Emergency Capital | 250.0 | 274.0 |
| Do. Family | 2 | 312.0 |
| Family Capital | 262.0 | 268.0 |
| Do. Acc'ts. | 271.2 | 471.0 |
| Frank Int. Capital | 271.2 | 269.0 |
| Do. Acc'ts. | 286.2 | 286.2 |
| Do. Int'l. | 286.4 | 278.0 |
| Do. Acc'ts. | 286.5 | 319.5 |

| | | | |
|--------------------------------------|-------|-------|-------|
| North American Insular | 117.4 | 121.4 | +3.4 |
| De. Accoun. | 122.2 | 122.2 | 0.0 |
| Public Insular | 122.9 | 124.4 | +1.5 |
| De. Insular | 131.6 | 134.3 | +2.7 |
| Property Insular | 123.4 | 124.9 | +1.5 |
| On Account | 130.8 | 130.8 | 0.0 |
| Insular-United Gilt Inst. | 95.8 | 95.8 | 0.0 |
| De. Accoun. | 100.5 | 100.5 | 0.0 |
| De. Insular | 117.7 | 119.3 | +1.6 |
| Deposits Accoun. | 145.4 | 153.3 | +7.9 |
| GRU. Pensions Management Ltd. | | 289.8 | +0.0 |
| Penn. Managed Insular | 265.8 | 265.8 | 0.0 |
| Penn. Managed Acc. | 249.9 | 249.9 | 0.0 |
| Penn. Equity Insular | 278.1 | 281.7 | +3.6 |
| Penn. Equity Acc. | 319.4 | 319.4 | 0.0 |
| Penn. Fed. Ins. Insular | 214.8 | 226.1 | +11.3 |
| Penn. Fed. Ins. Acc. | 229.6 | 229.6 | 0.0 |
| Penn. Ins. Insular | 267.5 | 271.2 | +3.7 |
| Penn. Ins. Acc. | 264.7 | 264.7 | 0.0 |

| | | | |
|---------------------------|-------|-------|------|
| Prem. Prog. Acc. | 156.2 | 156.1 | |
| Prem. Ins. Int. Est. In. | 47.9 | 47.7 | -0.2 |
| Prem. Ins. Int. G.L. Acc. | 7.0 | 7.0 | 0.0 |
| Prem. Ins. Int. G.L. Acc. | 146.9 | 146.7 | -0.2 |
| Prem. Dep. Intests | 146.1 | 146.0 | -0.1 |

| | | |
|--|-------|-------|
| Hambro Life Assurance P.L.C. | | |
| Allied Hambro City, London SE12 1EL | | |
| Fixed Int. Dep. Acc. | 118.4 | 118.4 |
| Equity Acc. | 490.5 | 490.5 |
| Pre-Assets | 299.7 | 299.7 |
| For Est. Int. | 107.4 | 107.4 |
| Managed Acc. | 110.8 | 110.8 |
| Long Term Acc. | 250.2 | 250.2 |
| Eq. Equity Acc. | 225.4 | 225.4 |
| American Equity Acc. | 280.3 | 280.3 |
| American Man. Acc. | 154.5 | 154.5 |

| | | | |
|------------------------|-------|-----|--|
| Pers. F.I.D. Exp. Acc. | 216.0 | 227 | |
| Pers. F.I.D. Exp. Acc. | 517.0 | | |
| Pers. Prop. Cas. | 384.8 | | |
| Pers. Prop. Acc. | 106.7 | | |
| Pers. Mch. Cas. | 301.8 | | |
| Pers. Mch. Acc. | 512.7 | | |
| Pers. G.R.D. Cap. | 233.4 | | |
| Pers. G.R. Exp. Acc. | 308.2 | | |
| Pers. La. Cap. | 765.0 | | |
| Pers. Ed. Acc. | 200.0 | | |
| Pers. Ed. Cap. | 117.3 | | |
| Pers. Ann. Exp. Acc. | 321.4 | | |
| Pers. Far East Cap. | 110.7 | 122 | |
| Pers. Far East Acc. | 120.8 | | |
| Pers. B.C. Cap. | 229.4 | | |
| Pers. S.S. Acc. | 318.0 | | |
| Pers. D.A.F. Cap. | 179.0 | | |
| Pers. D.A.F. Acc. | 228.6 | | |
| Pers. Mortgage Cas. | 101.1 | | |

| | | |
|---------------------------------|-------|--------|
| Heart of Oak Benefit Society | | |
| 125 Kingsway, London, WC2B 6NF. | | 01-40- |
| Property Fund | 48.7 | 52.1 |
| Technology Fund | 143.0 | 150.9 |
| Henderson Administration | | |
| 26 Finsbury Sq, London, EC2 | | 01-63- |
| High Income | 126.0 | 125.0 |
| Gift Edged | 92.0 | 94.9 |
| Cap Growth | 110.3 | 100.0 |
| Managed | 142.0 | 149.0 |
| Net. Resources | 123.7 | 130.7 |
| Special Situations | 207.0 | 217.5 |

| | | | |
|----------------------|-------|-------|-------|
| N. America | 260.1 | 252.8 | +2.8 |
| Far East | 235.6 | 240.1 | +4.6 |
| Priority | 124.9 | 129.4 | +4.5 |
| Managed | 218.2 | 230.8 | +12.6 |
| Deposit | 125.0 | 131.6 | +6.6 |
| Prime Res. | 130.3 | 137.2 | +6.9 |
| Managed Currency | 106.9 | 112.6 | +5.7 |
| Global Health Care | 107.3 | 113.8 | +6.2 |
| Pension Funds | | | |
| U.S. Equity | 136.5 | 142.7 | +6.2 |
| Fixed Income | 119.0 | 125.7 | +6.5 |
| Special Sit. | 104.4 | 110.0 | +5.6 |
| N. America | 129.9 | 136.6 | +6.7 |
| Far East | 187.5 | 198.4 | +10.9 |
| Priority | 104.9 | 110.0 | +5.1 |
| Prime Res. | 115.4 | 121.5 | +6.1 |
| Deposit | 111.4 | 117.3 | +5.9 |

Capital units prices available on request.

| Hill Samuel Life Assur. Ltd. | | |
|--------------------------------------|-------|-------|
| MLA Trw, Adelaide Rd, Craydon, 01-68 | | |
| Security Fund | 182.2 | 191.8 |
| British Fund | 177.5 | 189.0 |
| International Fund | 201.0 | 211.4 |
| Dollar Fund | 164.3 | 173.0 |
| Capital Fund | 187.9 | 199.9 |
| Income Fund | 207.9 | 217.9 |
| Property Series A | 188.5 | 198.5 |
| Property Units | 306.2 | 321.8 |
| Financial Fund | 158.0 | 167.3 |
| Managed Series A | 268.9 | 279.9 |
| Managed Series B | 268.9 | 279.9 |
| Managed Series C | 262.5 | 270.4 |
| High Yield Fund | 199.3 | 203.4 |
| Money Series A | 152.4 | 160.7 |
| Money Units | 174.2 | 204.5 |

| | | | |
|----------------------------|-------|-------|------|
| 2-Brd Int. Fund. | 177.5 | 181.4 | -0.4 |
| Indecon. Sec. Fd. | 100.9 | 106.3 | +1.0 |
| European Fund | 223.1 | 224.4 | +1.1 |
| Natural Resources Fd. | 126.0 | 132.7 | +1.5 |
| Far East Fund | 223.3 | 257.5 | +2.5 |
| Spec. Inv. Fd. | 176.4 | 176.9 | +0.5 |
| Spec. Svc. Fund | 185.3 | 179.1 | -5.7 |
| Manag. Empl. Fund | 127.5 | 124.9 | -2.6 |
| Japan Tech. | 318.6 | 324.4 | +1.8 |
| Pension Fund Prices | | | |
| Protecity Acc. | 223.2 | 226.0 | .. |
| Protecity Cos. | 177.1 | 188.5 | .. |
| Protecity Ind. | 337.5 | 340.0 | .. |
| Managmt Cos. | 324.9 | 347.3 | .. |
| Guaranteed Acc. | 228.2 | 280.3 | .. |
| Guaranteed Cos. | 177.4 | 181.5 | .. |
| Spec. Svc. Acc. | 247.8 | 254.2 | .. |
| Spec. Svc. Ind. | 275.1 | 275.1 | .. |
| Fixed Inv. Acc. | 232.1 | 244.6 | .. |

| | | | |
|---|--------|-------|-------|
| Fixed Inv. Cap. | 1984.9 | 194.7 | |
| Indemnt Secs. Acc. | 107.7 | 113.4 | |
| Indemnt Secs. Cap. | 73.4 | 100.5 | |
| Imperial Life Ass. Co. of Canada | | | |
| Imperial Life House, London Rd, Goddard | | | |
| Growth Fd Jan 4 | 290.6 | 207.1 | +6.6 |
| Pu Mkt Fd Jan 4 | 244.4 | 211.3 | +5.7 |
| Pu Mkt Fd Jan 4 | | 194.6 | +5.7 |
| Duff Limited Petroleum | | | |
| Fixed Inv. Cap. | 149.7 | 203.6 | +5.9 |
| Fixed Inv. Cap. | 106.4 | 144.4 | +1.1 |
| Senior Cap Fd | 230.0 | 126.7 | +1.0 |
| Equity Fund | 514.3 | 133.0 | +10.3 |
| Property Fund | 195.5 | 263.2 | +0.1 |

| Imperial Life (UK) Ltd. | | |
|---|-------|-------|
| Imperial Life House, London Rd, Colindale | | |
| Imperial Investment Portfolio | | |
| Managed Fd. | 111.0 | 116.6 |
| Gilt-Edged Fd. | 101.1 | 104.9 |
| Property Fd. | 115.8 | 125.9 |
| High Yield Fd. | 115.8 | 121.9 |
| Mutual Fd. | 99.7 | 102.9 |
| Int'l Inv Gld Fd. | 77.4 | 102.9 |
| UK Equity Fd. | 128.3 | 135.1 |
| Int'l Equity Fd. | 115.6 | 121.7 |
| Income Fund | 116.1 | 119.1 |
| N. America Fd. | 109.1 | 114.8 |

| Property | Value | Change |
|-------------------------|---------|--------|
| Property Manager | \$272.0 | |
| Property Manager | \$14.4 | |
| Prop. Mgmt. Ser. 2 | \$174.8 | |
| Prop. Mgmt. Ser. 3 | \$172.4 | +3.0 |
| Blue Chip Series 3 | \$103.1 | +3.1 |
| Blue Chip Series 3 | \$220.0 | +3.1 |
| Managed Series 3 | \$183.6 | +3.1 |
| Global Series 3 | \$223.3 | |
| Global Property | \$114.1 | |
| Global Fund Network | \$238.3 | -0.2 |
| Global Series | \$24.4 | |
| Global Cash | \$106.2 | +0.2 |
| Enough Managed | \$207.5 | |
| Prop. Mgmt. Ser. 2 | \$114.7 | |
| Equity Prop. Series 2 | \$67.9 | |
| Global Fund Netw. 2 | \$24.4 | |
| Managed Prop. Ser. 2 | \$24.2 | |
| Cash Portfolio Series 2 | \$129.2 | |

| Langham Life Assur. Co. Ltd. | | | |
|--------------------------------|-------|-------|--|
| Langham Hse, Holbrook Rd, NW4. | | | |
| Harvest Pys. Paid | 177.0 | 188.0 | |
| Langham 'A' Plan | 80.8 | 95.5 | |
| Prog. Bond | 277.7 | 242.3 | |
| Wsp GP1 Min Fd | 125.8 | 132.2 | |

| | | | |
|---------------------|--------|--------|-------|
| Dr. Accoun. | 2771.2 | 2855.5 | -8.3 |
| Inter Linked Ccts | 981.5 | 1013.8 | -32.3 |
| Dr. Accoun. | 106.1 | 111.7 | -5.6 |
| Int. Interest | 208.5 | 215.2 | -6.7 |
| Dr. Accoun. | 26.9 | 27.5 | -0.6 |
| Mortgaged Inlands | 153.4 | 157.3 | -3.9 |
| Dr. Accoun. | 132.7 | 140.7 | -7.1 |
| Property Inlands | 143.8 | 151.4 | -7.6 |
| Dr. Accoun. | 181.4 | 185.0 | -3.6 |
| Excess Cash Inv. | 148.9 | 157.7 | -8.8 |
| Dr. Accoun. | 212.7 | 222.9 | -10.2 |
| Excess Equip. Inv. | 181.6 | 190.7 | -9.1 |
| Dr. Accoun. | 606.7 | 618 | -11.3 |
| Excess Fixed Inv. | 280.6 | 285 | -4.4 |
| Dr. Accoun. | 125.4 | 127.4 | -2.0 |
| Ex Inter. Lst. Gnt. | 293.9 | 301.4 | -7.5 |
| Dr. Accoun. | 145.3 | 145.3 | 0.0 |
| Excess Int. Inland | 114.2 | 114.2 | 0.0 |

| | | | |
|-------------------|--------|-------|------|
| Cash & Mfgs Inv. | 1978.5 | 948.9 | -0.2 |
| Ac. Accr. | 576.6 | 581.7 | -1.0 |
| Europe Prop. Inv. | 173.6 | 186.7 | -0.1 |
| Sp. Accr. | 221.5 | 232.0 | -0.5 |
| De. Debitals Inv. | 125.9 | 128.9 | -0.3 |
| De. Accr. | 1137.9 | 245.2 | |

Legal & General Prop. Fd. Mgmt. Ltd.
 11, Queen Victoria St, EC4M 4TP, Ldn. 01-246
 L & G Jan 1 1147.3 152.8
 Next sat day Feb 1.

- | | |
|--|--|
| 4 Optician? (3-7) | 16 It's a certainty after is bought? (2, 3, 3) |
| 6 Pugilist's extremities with purples producing check? (8) | 17 Enter old exchange. It smelling (8) |
| 7 Could he make lover die? (4-4) | 19 Bird in the field? (6) |
| 8 Folded cords without Eastern obstructions (8) | 20 Tailed off to become wide (6) |
| 12 Give weapon to our callow (initially) youth, well-pro- tected (8-4) | 21 Gentleman's revolutionar uprising is a plant (6) |
| 15 Doomed defendant embraces right (8) | The solution to last Saturday's prize puzzle will be published with names of winners next Saturday. |

15 Doomed defendant embraces
right (8)

هكذا عن الأصل

INSURANCE, OVERSEAS & MONEY FUNDS

[illegible][illegible][illegible][illegible]

E.F. Hutton

market makers

Sterling FRNs

On Friday 11th January, E.F. Hutton added a comprehensive list of Sterling Floating Rate Notes to the two hundred eurodollar FRNs the Company trades. E.F. Hutton is the first trading house outside the UK merchant banks to make a major commitment to this sector.

For further information or prices call Kathy Nevin, Vice President, FRN sales.

E.F. Hutton & Company (London) Ltd.,
Princess House,
152-156 Upper Thames Street,
London EC4.

Telephone 01-626 9541

CURRENCIES, MONEY and CAPITAL MARKETS

FINANCIAL FUTURES

| LONDON | | | | | U.S. TREASURY BONDS 6% \$100,000 | | | | |
|---|-------|-------|-------|--------|---------------------------------------|-------|-------|-------|--------|
| Three-month | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
| March | 90.81 | 90.85 | 90.78 | 90.85 | March | 71.02 | 71.16 | 70.30 | 71.09 |
| June | 90.21 | 90.25 | 90.18 | 90.25 | June | 70.09 | — | — | 70.17 |
| Sept | 89.71 | 89.75 | 89.68 | 89.75 | Sept | 69.10 | — | — | 69.18 |
| Dec | 89.21 | 89.25 | 89.18 | 89.25 | Dec | 68.10 | — | — | 68.18 |
| Est volume 4,800 (4,821) | | | | | Est volume 1,219 (1,787) | | | | |
| Previous day's open int 11,083 (10,425) | | | | | Previous day's open int 1,606 (1,457) | | | | |

| CHICAGO | | | | | U.S. TREASURY BONDS (CBT) | | | | |
|-------------|-------|-------|-------|--------|---------------------------|-------|-------|-------|--------|
| Three-month | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
| March | 90.81 | 90.85 | 90.78 | 90.85 | March | 71.02 | 71.16 | 70.30 | 71.09 |
| June | 90.21 | 90.25 | 90.18 | 90.25 | June | 70.09 | — | — | 70.17 |
| Sept | 89.71 | 89.75 | 89.68 | 89.75 | Sept | 69.10 | — | — | 69.18 |
| Dec | 89.21 | 89.25 | 89.18 | 89.25 | Dec | 68.10 | — | — | 68.18 |

| U.S. TREASURY BILLS (MM) | | | | | U.S. TREASURY BILLS (MM) | | | | |
|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
| March | 105.22 | 105.26 | 105.19 | 105.22 | March | 91.82 | 91.90 | 91.80 | 91.82 |
| June | 105.02 | 105.06 | 104.95 | 105.02 | June | 91.82 | 91.90 | 91.80 | 91.82 |
| Sept | 104.82 | 104.86 | 104.75 | 104.82 | Sept | 91.82 | 91.90 | 91.80 | 91.82 |
| Dec | 104.62 | 104.66 | 104.55 | 104.62 | Dec | 91.82 | 91.90 | 91.80 | 91.82 |

| U.S. TREASURY BILLS (MM) | | | | | U.S. TREASURY BILLS (MM) | | | | |
|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
| March | 105.22 | 105.26 | 105.19 | 105.22 | March | 91.82 | 91.90 | 91.80 | 91.82 |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
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| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
| March | 105.22 | 105.26 | 105.19 | 105.22 | March | 91.82 | 91.90 | 91.80 | 91.82 |
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|--------------------------|--------|--------|--------|--------|--------------------------|-------|-------|-------|--------|
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| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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| Close | High | Low | Prev | Settle | Close | High | Low | Prev | Settle |
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| March | 105.22 | 105.26 | 105.19 | 105.22 | March | 91.82 | 91.90 | 91.80 | 91.82 |
| | | | | | | | | | |

FINANCIAL TIMES SURVEY

International Telecommunications

The once-traditional structure of the worldwide telecommunications sector is now being shaken to its foundations by a confluence of economic, technological and political forces.

Year of dramatic upheavals

BY GUY DE JONQUIERES

THERE CAN be few years in the history of telecommunications which have seen as many dramatic upheavals as 1984. In the past 12 months change has been piled upon change in a dizzying rush of events which is reshaping large parts of the industry worldwide.

A brief, and by no means exhaustive, list tells the story:

● January: American Telephone and Telegraph is broken up in the largest corporate divestiture in history. Its Bell System local telephone companies are organised into seven independent regional groups.

● March: The West German government announces plans to create an official committee to examine the country's long-term telecommunications strategy and the operations of its national Post Office, the Bundespost.

● July: Standard Telephones and Cables of Britain, the world leader in submarine cables, bids for ICL, the largest U.K.-owned computer company. STC says that the merger will equip it to tackle emerging markets created by the convergence of computing and communications.

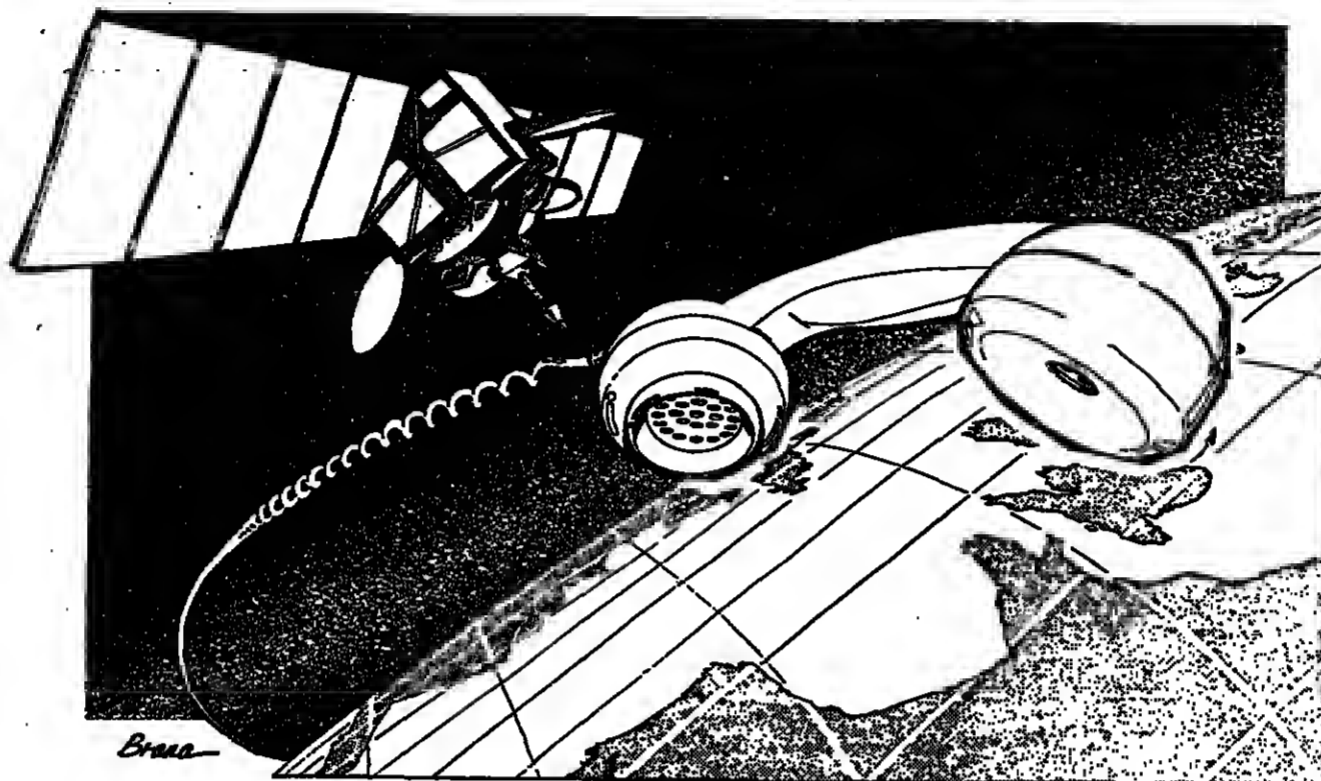
● October: MCI and GTE, Sprint, two U.S. long-distance telecommunications carriers, trigger a transatlantic price war by announcing plans to start low-cost services to Europe,

challenging AT&T's international monopoly. AT&T responds by cutting transatlantic tariffs by 29 per cent. British Government rejects as anti-competitive a proposal by British Telecom and IBM of the U.S., the dominant computer manufacturer, to launch jointly an electronic information network.

● November: Just over half of British Telecom is sold to investors for almost \$4bn in the world's largest stock market flotation.

IBM wins U.S. Justice Department approval to take full control of Rolm, the leading U.S. supplier of digital private branch exchanges (PBXs).

● December: Japanese Parliament (Diet) approves plans to open its national telecommunications market to competition and sell shares in its domestic monopoly carrier, Nippon Telegraph and Telephone, to the public.



These developments reflect in different ways a confluence of economic, technological and political forces which are shaking the traditional structure of telecommunications to its foundations and erasing the rigid demarcation lines which have long kept it a separate and self-contained industry.

In almost every country, telecommunications was until quite recently deemed to be first and foremost a public service. There was a widespread consensus that, because the planning and operation of public networks involved sizeable economies of scale, considerations of efficiency made the industry a "natural" monopoly, to be entrusted to a single carrier.

The goal of universal telephone service—provided on the

same terms everywhere—coupled with the desirability of attracting as many subscribers as possible, led to the emergence of pricing structures and practices based on social objectives rather than strictly commercial ones.

Investments

An elaborate system of cross-subsidies grew up, whereby profits from high-volume activities with low fixed costs, such as long-distance calls, were used to keep down tariffs for unprofitable businesses such as residential service. Investments were based on engineering criteria rather than the commercial return they were likely to generate.

A series of hammer blows is

now chipping away at this comfortable, predictable world. The convergence of computing and communications around micro-electronics is changing the whole nature of the industry's business. The emergence of digital communications systems is erasing the distinction between voice and data traffic and spurring the development of "value added" services which combine the transmission, processing and storage of information.

The application of new technologies is turning the industry's economics upside down. Some activities which used to require huge capital investment costs have become dramatically cheaper, lowering the economic barriers to market entry which have traditionally

underpinned monopoly. Rapid advances in satellite technology have made it possible to establish quickly long-haul, broadband communications links at costs which are independent of distance. Techniques such as microwave radio, cellular mobile telephony and cable television offer an increasingly economic means of bypassing local telephone networks.

On the other hand, some costs which were traditionally relatively low, have started to soar. The shift from mechanical to computerised public exchanges has created a need for vast amounts of expensive specialised software. The investment to develop a new generation of digital exchanges is close to \$1bn—requiring sales totalling

as much as \$14bn to ensure a profit.

As a consequence, public network operators worldwide are becoming more cost-conscious and turning to practices such as competitive bidding and multiple sourcing for large equipment orders. That in turn is putting more pressure on their suppliers, particularly in Europe, where the equipment industry is starting to look seriously overcrowded.

The U.S. has responded to these developments by adopting policies of sweeping deregulation and restructuring which are explicitly intended to encourage more vigorous competition. In the past few years some U.S. markets, notably long-distance services, have become a free-for-all, as new entrants jostle for position.

A heavy price has been paid for the break-up of the Bell System in terms of higher local telephone charges, service dislocation and general confusion among customers. However, on the other hand, customers have benefited from lower long-distance tariffs, declining equipment prices and a rapidly expanding choice of products and services.

Both the UK and Japan have concluded independently that the traditional structure of their telecommunications industries was hindering innovation and efficiency. In both cases, it has been decided that rigid state monopolies operating in civil service lines are ill-equipped to respond to the challenges of fast-moving markets.

Complex

However, both countries have gone less far than the U.S. in opening the doors to competition and are adopting a more managed approach to deregulation. In the UK, British Telecom's market dominance remains largely intact, and the main benefit to customers so far stems from the more responsive and commercial attitude which

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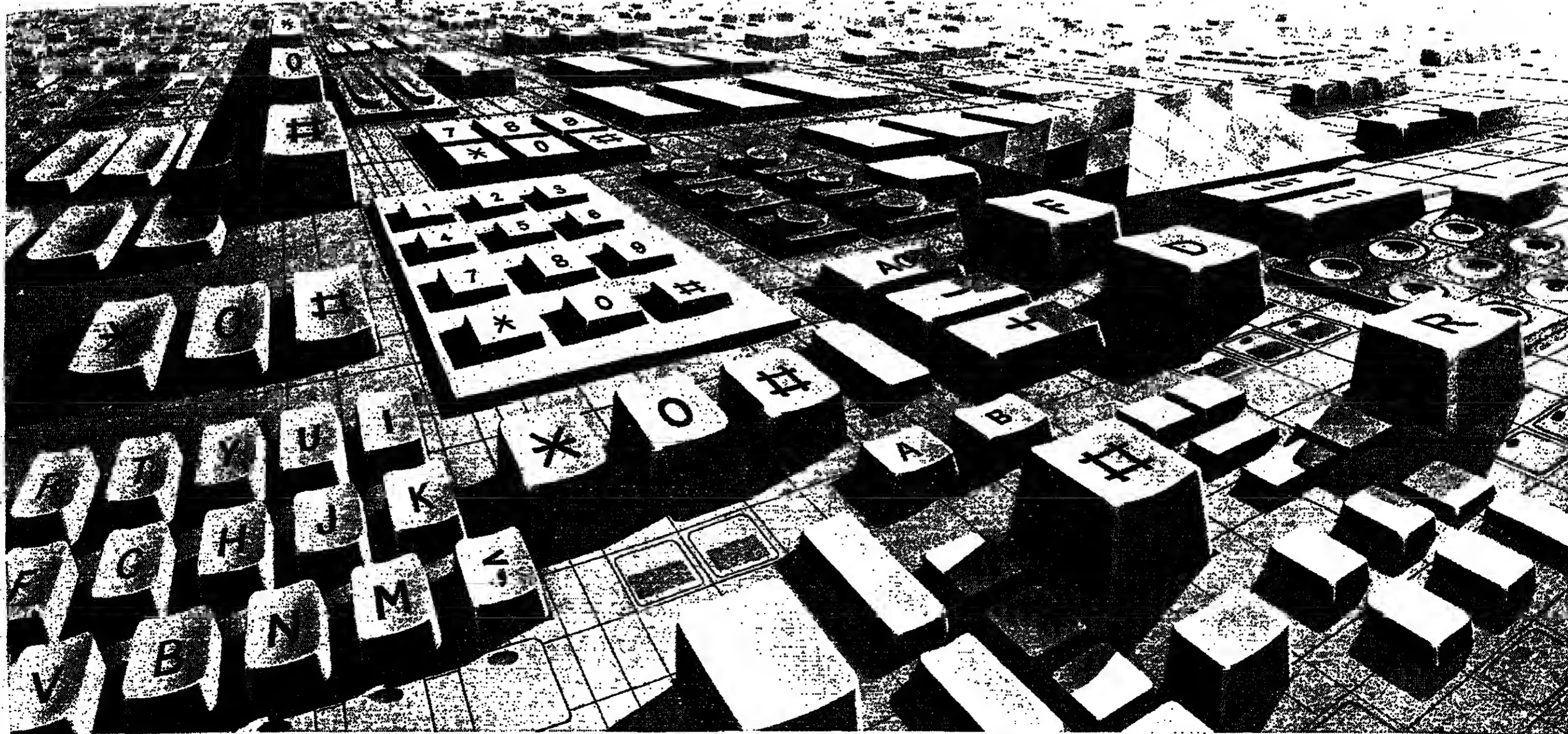
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PLESSEY



International Telecommunications 2

A diminished U.S. giant finds a learning curve

AFTER 103 years as a regulated monopoly delivering reliable, cheap basic telephone service, the new American Telephone and Telegraph (AT & T) experienced a bumpy beginning in its first year as a slimmed down giant competing in new unregulated markets.

Profits have failed to match up to projections and questions have been raised about the new AT & T's ability to deliver and market new customer products and services in a fiercely competitive environment.

For many AT & T employees, used until recently to working in a stable, protected environment, the new norm and a job was usually for life, the break-up of the world's largest corporation, at the start of 1984, has required the assimilation of a new corporate culture.

But despite its problems, AT & T has tremendous resources and is striving to prove that it also has the ability to learn and adapt to the new challenges it faces.

"The people who are staying with the company are people who understand that a new day has dawned for AT & T and who want to be in on the action," commented Mr. Charles Brown, AT & T's chairman, last month.

Mr. Robert Allen, AT & T's executive vice president in charge of administration and finance, was the need for a change in corporate culture was "overstated." He accepts, however, that there has been an "evolutionary" change as AT & T's workforce has begun to focus more clearly on defining consumer needs, identifying markets, speeding the production process and making it more efficient.

"There is nothing that shocks more than to lose in the marketplace, an experience that in a reasonably protected environment we did not fully appreciate," says Mr. Allen. Now he says "we are on the right learning curve."

Many AT & T employees have had to learn new skills and new ways of doing business. "There has been a lot of learning among our employees,"

systems have been introduced, management wages have been frozen, headquarters staff have been slashed and voluntary retirement programmes introduced for the first time.

In the past year, 13,000 "positions" have been eliminated and the total workforce has been trimmed from 374,000 to 369,000. Further job cuts are expected—but on a more limited scale which Mr. Allen refers to as "fine tuning."

"We entered this new competitive world with a cost structure that is too high," admits Mr. Brown. "We are very serious about bringing our cost down."

Indeed, the company's financial performance to date has been another source of anxiety, not only to AT & T managers and employees, but also investors.

AT & T's earnings have fallen well behind the projections made by the company ahead of the breakup and in the 1984 third quarter sales in both the Technologies group and AT & T Communications, which provides long-distance telephone services, fell from the previous quarter.

Nine month earnings of \$180 or 91 cents a share represented just 44 per cent of AT & T's pre-divestiture projection of \$2.02 a share in full year net earnings. Indeed, with Wall Street analysts now projecting full year earnings of around \$1.48bn or \$1.35 a share, earnings will barely cover AT & T's \$1.20 full year dividend last month.

"We predicted we would face a tough first year and we have proven that ourselves," says Mr. Allen.

Along with Mr. Brown and other senior AT & T executives, he argues that much of the shortfall in projected earnings reflects the slower-than-expected regulatory action in Washington on such crucial issues as the level of residential end-user

charges and access charges where the Communications group still labours under a serious cost disadvantage against other long-distance companies.

But prospects from brightening. Further regulatory changes, though slow in coming, promise some relief for AT & T in its long-distance business and many of the raft of new products introduced by the Technologies sector in the past year have been well received.

"I see these first years as stepping stones to our future," Mr. Brown told industry analysts. "We will get more sure-footed as we make the crossing but it will be a while before we are earning at a level that will meet the financial goals we have set for ourselves—and to which we remain committed."

The goals

Those goals include a 17.5 per cent return on equity in the communications division in the near term and a 20 to 25 per cent or higher return for the Technologies group.

To achieve those goals, AT & T will have to work hard. But despite some setbacks, it is already showing it knows what must be done and has the determination and financial muscle to succeed. In the long-distance telephone business where AT & T faces fierce competition from cut-price carriers such as MCI and GTE Sprint, its newly aggressive marketing tactics have surprised competitors and won praise—despite the grumbles of consumers confused by the changes and angered by service and installation delays.

AT & T's chairman admits there have been problems, but the company set quickly setting up a task force to sort out post-divestiture delays. As a result, service orders are now back to near normal and the backlog in private line orders has been reduced from 44,000 in mid-summer to under 15,000.

In the market for network switches, AT & T is "rambling up" production of its SESS digital switch and has formed joint ventures with Philips of Holland, South Korean and Taiwan companies to market the product overseas. In 1984, AT & T shipped 147 digital switches with 2.5m lines of capacity compared to 27 switches with 180,000 lines in 1983.

This year, Mr. Brown says, the company expects to ship 325 SESS switches with 6m lines. It is, however, AT & T's push into the unregulated office equipment and computer market which has perhaps drawn most attention—with success and some disappointments.

| Name | 3rd qtr revenue \$m | 3rd qtr net income \$m | 3rd qtr EPS | 9 mths revenue \$m | 9 mths net income \$m | 9 mths EPS | 1984 EPS Estimate | Access lines |
|-------------------|---------------------|------------------------|-------------|--------------------|-----------------------|------------|-------------------|--------------|
| AT & T | 8.01 | 317.0 | 0.23 | 24.75 | 1,000.0 | 0.31 | 1.36 | n.a. |
| Ameritech | 2.11 | 266.0 | 2.73 | 8.21 | 788.0 | 8.10 | 10.50 | 14,387,000 |
| Bell Atlantic | 2.01 | 243.5 | 2.54 | 5.99 | 732.0 | 7.51 | 10.15 | 14,585,000 |
| Bellsouth | 2.38 | 326.0 | 1.11 | 7.00 | 894.4 | 3.06 | 4.10 | 13,585,000 |
| Nynex | 2.42 | 262.8 | 2.66 | 7.06 | 724.1 | 7.44 | 9.35 | 13,040,000 |
| Pacific Telesis | 1.98 | 229.3 | 2.23 | 5.75 | 659.5 | 6.45 | 8.50 | 11,237,000 |
| Southwestern Bell | 1.836 | 242.4 | 2.47 | 5.3 | 659.5 | 6.78 | 9.00 | 10,907,131 |
| U.S. West | 1.86 | 228.3 | 2.39 | 5.403 | 634.3 | 6.61 | 8.90 | 10,747,000 |

* Standard & Poor's Outlook
† Earnings per share

Research by Mike Natchez

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The new products have included the PC8300 personal computer, the 3B line of business computers and its system 85, system 78 and Merit FEXs.

There is little doubt inside or outside AT & T's plush New York headquarters that it is the convergence of telephone and data processing technologies that provides perhaps the greatest challenge for AT & T, which, with \$39bn in assets is about the same size as International Business Machines—increasingly seen as the arch rival.

IBM's recent acquisition of Rolm, the West Coast PBX-maker, is seen by AT & T executives as a key strategic move by Big Blue—one which further signals IBM's intention to go "head-to-head" with AT & T—a challenge which AT & T has signalled it intends to meet with its own products and, where necessary, others brought in.

AT & T's move six months ago into the personal computer market with a machine made by Olivetti, the Italian group in which AT & T has acquired a 25 per cent equity stake, immediately raised the stakes in a battle which is now frequently depicted as a future "clash of the Titans."

While AT & T's initial entry into the personal computer market has disappointed some outsiders, AT & T executives express no such reservations—

"we have not made a big dent, but it would be surprising for anyone entering a new market that competitive with such formidable competitors to make a big dent in six months," says Mr. Allen.

Enthusiasm

AT & T executives also express strong enthusiasm and confidence in their new international partnerships, including the Olivetti link-up, despite some hints of early teething problems.

"New marriages are not without adjustments," says Mr. Allen, but he adds: "We have been meeting recently to strengthen the relationship and to work out any hitches that may exist and to make plans for the future."

This year, another flood of new products, including office

work stations, from the Olivetti partnership, and improvements to the AT & T line of 3B computers are promised "fleshing out" the product line and confirming what Mr. Brown terms AT & T's "intention to be a complete vendor of office automation systems."

"We intend to be in the marketplace, we have the staying power and we have the skills and technology," says Mr. Allen. The new AT & T may have set off to a rocky financial start but no one underestimates AT & T's determination to succeed.

The Bell system breakup is one-year-old and its repercussions are already being felt throughout the world telecommunications industry. It may be a decade before the market settles down. In the meantime, from the new AT & T's perspective, it is just the end of the beginning.

Changes will toughen competition

U.S. long-distance services
PAUL TAYLOR

THE BREAK-UP of the Bell system has created unprecedented opportunities—and risks—perhaps nowhere more so than in the U.S. long-distance telephone market.

AT&T and its long-distance telephone service, rivals emerged from 1984 battered and bruised—but having learnt one clear lesson: selling long-distance telephone service is a high-stakes business in a changing environment where marketing is crucial and the customer is king.

"It is intensely competitive," says Sam Wilcoxson, executive vice-president for marketing at AT&T Communications, the AT&T unit responsible for long-distance service.

The new AT&T entered divestiture still with the lion's share of the \$45bn a year U.S. toll market but with other common carriers like MCI, GTE's Sprint, ITT and IBM's Satellite Business Systems, snapping at its heels.

The divestiture agreement set in motion a process designed eventually to create "a level playing field" for competition in the long-distance market, and a marketplace in which customer charges would more closely reflect costs. The impact of this radical change is already being felt.

Central to this strategy is the notion of "equal access" to the local telephone system for all long-distance competitors. For the first-time customers will be free to choose their long-distance carrier and place toll calls without the need to punch in a string of extra digits.

The move to equal access, in which customers are being asked to choose their favoured long-distance carrier began in Charlotte, West Virginia in July and will be completed by September, 1985.

Market shares

What Charlotte and other early equal access areas have showed is that the change is likely to bring even tougher competition—and higher marketing costs—to the long-distance carriers as they rush to sign up customers.

It is also likely to change market shares, perhaps dramatically. MCI claims it is winning between 10 and 15 per cent of the market in equal access "competitions"—about three times its overall market share—while GTE Sprint claims between 6 and 15 per cent.

In the battle to sign up new customers, millions of advertising and promotional dollars are being spent. Last year alone, MCI spent \$20m—or a third of its total marketing budget—to sell its service to customers in equal access areas.

In contrast AT&T Communications, which has adopted a much tougher, hard-nosed advertising strategy, spent a total of about \$200m on marketing last year. The AT&T dollars went not only on media advertising but also on projects like "opportunity calling" which offers long-distance customers dollar-for-dollar discounts on merchandise, and "reach out America," a cut-rate weekend and night-time

package which provides one hour of long-distance calls for a flat \$10 a month. More than 800,000 subscribers have already signed up opportunity calling.

There are other major changes under way which deeply affect the pricing of long-distance telephone calls in the U.S. and the finances of the companies which offer the service. For AT&T competitors the rights to compete on an equal footing with the industry's giant have come at a price.

Since last May, all the long-distance companies have had to pay access charges to local telephone companies to "complete" their customers' calls through local networks. While the new AT&T payments will fall over time, those of its competitors will increase, narrowing the cut-price carriers' current cost advantage.

"As equal access cuts in their costs will ramp up," says Mr. Wilcoxson.

Pricing strategy

At the same time, AT&T Communications has adopted a more aggressive pricing strategy in an effort to halt the erosion of its market share in the long-distance business. Last year it has lowered its long-distance charges by more than 6 per cent or \$1bn, forcing its competitors to match the move by reducing their own charges and, as most have done, remove monthly and sign-up fixed charges.

Mr. Wilcoxson, commenting on the new aggressive strategy which has surprised some Wall Street analysts and competitors with its force, says: "I think it is a crystal clear through various initiatives that we don't intend to sit idly by; we do not intend to watch over the demise of AT&T."

This twin-bladed cost and pricing pressure has come at a time when the major long-distance telephone companies are spending heavily to expand and upgrade their networks. AT&T itself announced in November last year that it would spend \$2bn by 1990 to expand its long-distance network including 21,000 miles of advanced fibre-optic cable capable of carrying both voice and data.

Other carriers are also investing heavily. MCI spent \$1bn to expand its service last year and will spend the same again in 1985. GTE, which invested almost as much in sprint, actually set to stop accepting new customers at one stage last year because it ran out of capacity.

These factors have faced MCI and AT&T's other cut-price competitors with a cash squeeze. Both MCI and GTE reported big gains in the number of customers but lower revenues and profits in the September quarter. MCI's profits fell by 86 per cent while GTE's communications services division, which includes sprint, lost \$1.7m.

Most Wall Street analysts expect a substantial shake out in the industry before the pricing structure stabilises. Many believe that the number of long-distance carriers could drop from around 400 currently to about 20 with the bulk of the business accounted for by a handful of big companies.

What is already clear is that the structure of the long-distance telephone market is undergoing a fundamental change. The old pre-divestiture Bell system together with the independent telephone companies commanded an over-

whelming market share, in terms of revenues, customers and line-minutes.

AT&T itself, excluding the Bell operating companies, had revenues of \$26.13bn from inter-exchange business in 1983 compared to \$3.823bn for the other common carriers.

The rest of the \$45bn market was accounted for by the Bell operating companies themselves, the independent telephone companies and by private microwave companies.

Some confusion surrounds the current break-down and decline of the market. AT&T Communications while it still has 80m residential and 7m business customers, says that in revenue terms its market share is now down below 60 per cent and is still slipping. However, because of the growth of the market, AT&T Communications should still be able to increase its revenues in absolute terms.

AT&T Communications efforts to dispel what it sees as a myth of its market dominance reflect the fact that it itself should not be given fairer treatment by the regulators.

In particular, AT&T wants the FCC to change the rules which still force it to file time-delaying tariffs with the FCC, at least for the moment, pay access charges that are 50 per cent higher than its rivals. It would also like the FCC to allow it to earn a more flexible rate of return on its investment rather than the current 7.75 per cent fixed ceiling—a ceiling which its average 11.5 per cent return in the first nine months last year failed to match.

Whatever happens to the structure of the industry, MCI and GTE will certainly be among the survivors and Wall Street expects the survival of ITT's service and that of SRS which has yet to make a profit.

Uncertainty

There is much more uncertainty about the hundreds of smaller companies and resellers like Allnet who have prospered until now by leasing or buying lines at a discount from AT&T and other major carriers and then repackaging them for their own customers.

The battle has already claimed some victims. U.S. Telephone, once a leading reseller, was acquired last year by United Telecommunications, the large independent telephone company. LDX, a California-based reseller, merged in July and Ford Aerospace and Communications acquired Starnet, a California-based reseller.

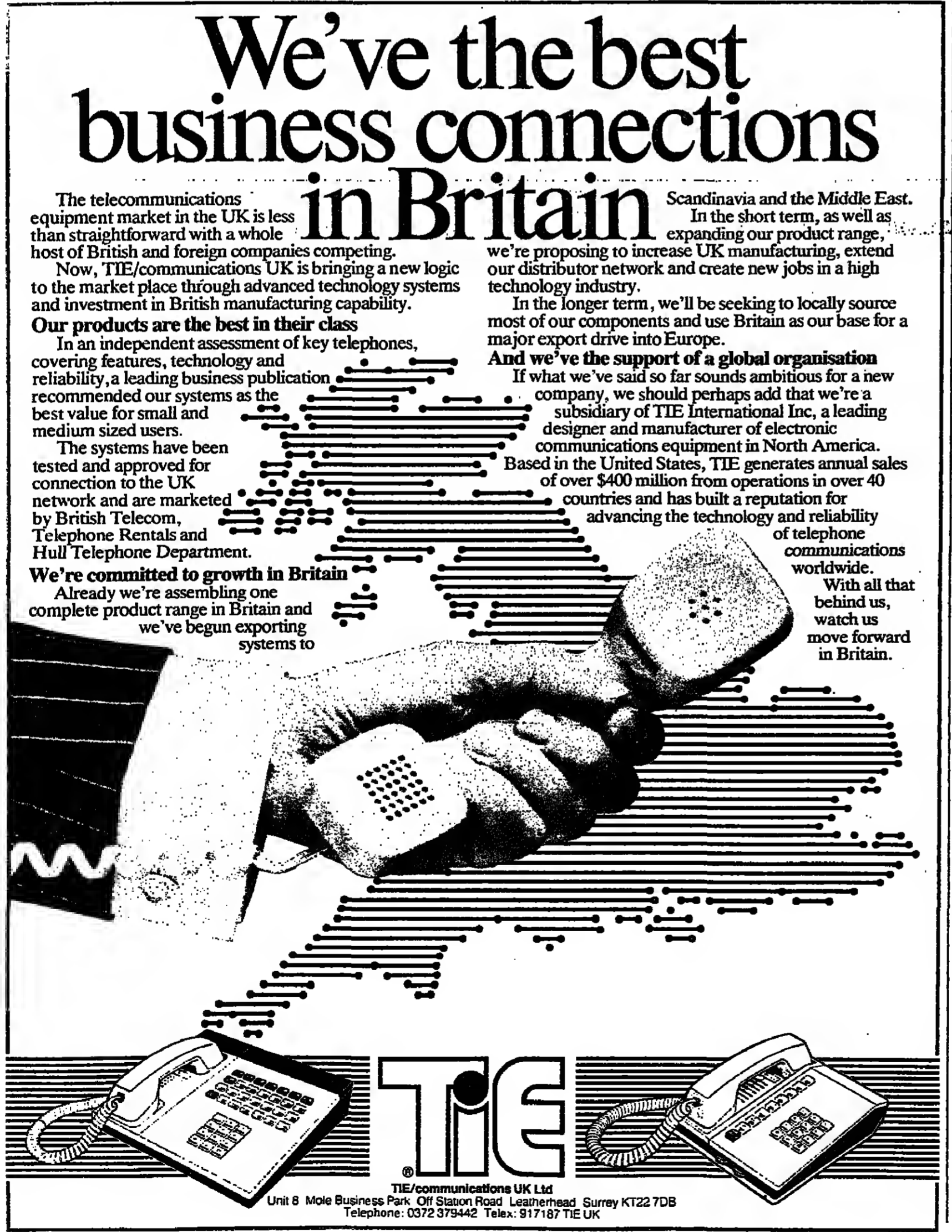
What more stability and improved margins are expected as the market settles down, few Wall Street analysts believe margins will ever be as high as before divestiture.

One other side of the coin is that at least in long-distance telephone market, the customer appears to have benefited in terms of cost—even if he remains thoroughly confused about the changes.

Last year, long-distance rates fell by between five and six per cent partly offsetting local telephone charge increases and "access fees" which have already been introduced by the U.S. Federal Communications Commission for business customers and will be phased in beginning in June for residential telephone subscribers.

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International Tele communications 3

Regionals are riding high

THE SEVEN regional telephone holding companies were called Ma Bell's "orphans" when they were spun off a year ago in the biggest-ever, court-ordered divestiture. The regional holding companies—each a giant in its own right—faced an uncertain future in a fast-changing industry.

One year later, many challenges still remain but the new "seven sisters" have already proved they can stand on their own. Their profits have been higher than projected, dividend increases are expected and share prices are riding high, outperforming the market.

They have controlled costs by trimming staff and proved fast learners in the marketing game. What is more, they have begun to express their independence by challenging AT & T for contracts, ordering equipment from some of their parent's old rivals and aggressively fighting for the right to enter new and unregulated businesses.

In 1984—or 1 AM (after divestiture), as last year is now known—much to the surprise of Wall Street, it has been the regionals who have stolen the show.

After a somewhat hesitant start, the share prices of the seven regionals have soared. By last month, the group's share value had increased by almost 20 per cent while the S & P 500 index increased a mere 1.9 per cent, share prices have been bolstered by healthy earnings and high dividends.

Strong growth

In contrast to their old parent, the per share earnings of all seven regionals had more than doubled their annual dividend by the end of the third quarter and Wall Street telecommunications analysts are now looking for first quarter dividend increases of between five and seven per cent.

"The fundamentals of the local exchange industry are both sound and improving," says Neil Yelsey, a Salomon Brothers telecommunications expert. The strong growth in the U.S. economy has helped the regionals. But with local telephone service still providing over 95 per cent of their revenues, their success in winning rate increases from state regulators and an impressive, and largely unexpected, drive to cut costs and staff have been major factors in their performance to date.

U.S. West, for example, has trimmed its workforce since January 1, 1984, by more than 3,000, while Nynex has cut more than 2,500 jobs. Meanwhile, while revenues have fallen,

U.S. regional telephone companies

PAUL TAYLOR

slightly below expectations, Bell operating companies have won over \$2.6bn in state authorised rate increases with decisions on \$3.4bn in higher charges still pending, according to Salomon Brothers figures.

The seven regionals have also begun to develop their own distinctive strategies and have not shied away when these have brought them into apparent conflict with AT & T, the supposed "new order," and even with each other.

In several cases regional companies have bid in direct competition with AT & T for lucrative commercial and industrial contracts. So far, AT & T has won most of the contests, but the battle is on. Similarly, the Bell companies have begun to offer services to customers in their "sister's" patches. Bell Atlantic has won an Inland Revenue contract in New York, Nynex's backyard while a U.S. West subsidiary is offering a consultancy service in 30 cities nationwide.

Most have also begun to branch out from their basic telephone business, carefully at first, but with a growing momentum. The divestiture agreement left the Bell regionals with rights to three basic non-telephone businesses, advertising, cellular telephone service and the right to set up separate customer-premises-equipment marketing subsidiaries.

All the Bell regionals have formed subsidiaries to actively pursue these businesses.

"We believe it is extremely likely that all these businesses will register considerable sales growth and produce a respect-

able profit for their parent companies by the end of the decade," says Mr Neil Yelsey in a recent Salomon report. Already these non-regulated businesses are beginning to contribute to the bottom line at some of the regionals.

Most of the regionals are already selling private branch exchange equipment (PBXs) sold by Northern Telecom and other AT&T rivals.

By some estimates, their share of the equipment market could rise from nothing to perhaps 25 per cent within a few years. Ameritech's equipment subsidiary, one of the most aggressive, sold over \$100m of telephone, office communications and data transmission last year.

A Nynex subsidiary has begun opening Data stores that offer a wide range of telecommunications and computer products—including IBM products—to small business and professional buyers and last month signed an agreement with Data General, the computer group, to offer Data General's complete line of products.

Nynex Business Information Systems president, Mr Richard Santagati, noted, "Business customers no longer are satisfied with communications companies that can meet some of their needs. They want one company, one source that will investigate their communications and information needs and design an integrated system that truly works."

A unit of Southwestern Bell has won a joint venture five-year contract to sell Yellow-Pages advertising in Australia and several of them are venturing into the property business.

Challenge

The Bell companies are also beginning to challenge AT&T's dominance of complex leased business equipment by cutting prices and reviving a system called Centrex which offers customers many of the advantages of an in-house PBX.

Other Bell companies are seeking permission to offer high speed computer communications using new digital switches they are installing at rapid pace. Most have become involved in the explosion of cellular car telephone systems and some are edging towards offering interactive cable TV and video services.

But they have also already gone further than perhaps was ever anticipated in challenging the basic barriers implicit in

the divestiture agreement which separate regulated local telephone services from non-regulated businesses.

Last month, with the backing of the U.S. Federal Communications Commission (FCC) they won an important ruling from Judge Harold Greene—architect of the Bell system break-up.

The ruling will permit six of the seven Bell companies, through separate subsidiaries, and with certain limitations, to proceed with plans to enter new businesses including computer and office equipment sales, property services and a variety of foreign ventures.

Approval

Judge Greene's ruling allows Nynex, Pacific Telesis and Bell South to sell office equipment, computers and services. In addition, Bell Atlantic was given permission to acquire Tri-Continental, an office equipment leasing company, and Sorbus, a Philadelphia computer maintenance company. Bell Atlantic has already acquired an Atlanta-based paging company.

U.S. West and Pacific Telesis won approval to provide property services and U.S. West was given permission to go ahead with a cellular radio system for the Gulf of Mexico. Pacific Telesis, Nynex, U.S. West and Ameritech were given approval to set up overseas subsidiaries which will provide consulting services, training, engineering, design, construction and other services and be allowed to sell computer and telecommunications equipment and software overseas.

These new ventures represent an important toe-hold for the regionals in high-margin value added services and the ruling is expected to be the first of many on similar applications.

Despite this relatively rosy outlook, the Bell regionals do, however, face a series of serious challenges. Among these, some state regulators are beginning to pare back rate increases and are considering allowing new local competition for local telephone service.

By the end of this century, many Wall Street analysts believe all local exchange operators will face considerable competition.

Part of this competition is likely to take the form of "by-pass" systems used by large business customers to route calls without entering the local telephone network. Since business customers generate a disproportionately high per-

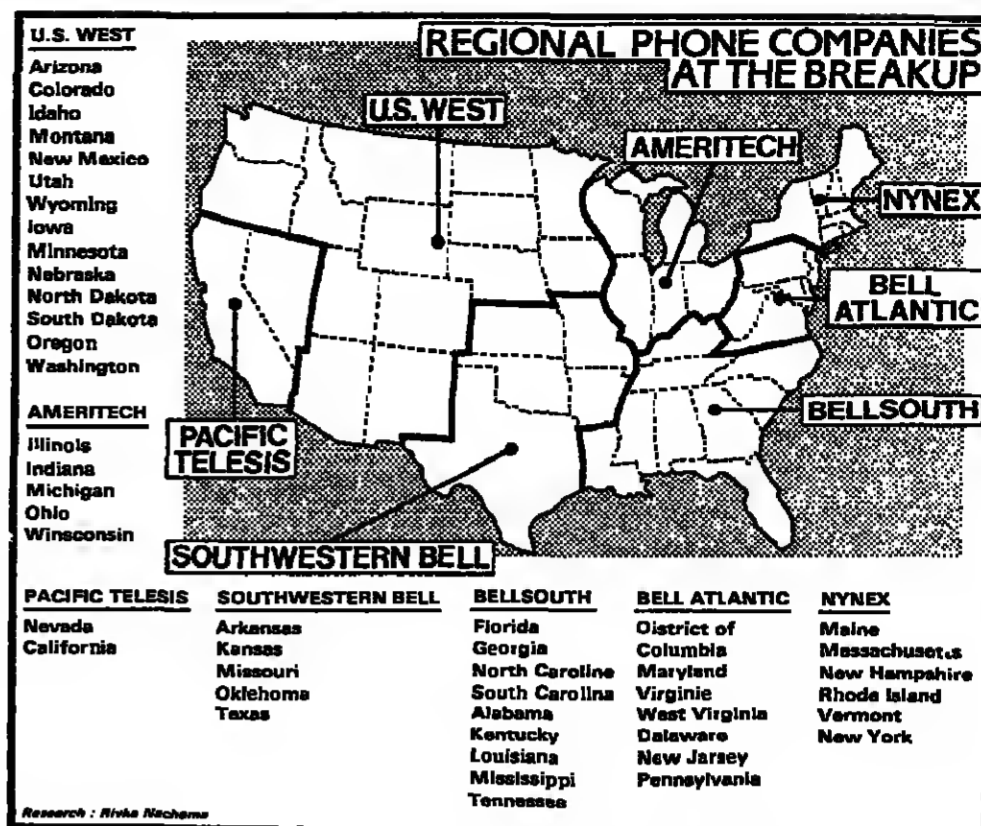
centage of the regional's revenues, by-pass represents a potentially serious threat.

State regulators may be inadvertently encouraging by-pass by perpetuating a charging structure still unrelated to costs and which effectively means business customers subsidise private subscribers.

For example, Pacific Telesis estimates that the cost of providing an individual subscriber with a dial tone is \$28 a month. Even with a recent rate increase an individual subscriber is still only paying \$8.23 a month for the line.

Another potentially serious challenge comes from the possibility that AT&T will set up its own billing systems for long-distance customers—a move which could deprive the regionals, who currently provide the services on contract, of perhaps \$2.5bn a year in revenues.

For the moment, however, the regionals have generally deferred on their promise at divestiture. The parts do indeed appear to be worth more than the whole.



Battle of the Titans

U.S. equipment manufacturers

LOUISE KEHOE AND PAUL TAYLOR

THE CONVERGENCE of telecommunications and data processing technologies into the field of digital communications is dramatically reshaping the telecommunications equipment industry. Coupled with deregulation of the U.S. telephone system and the break-up of AT&T, the spread of digital communications has created a new and fiercely-competitive environment for all types of communications apparatus.

Over the past year this has been particularly evident in the market for "private branch exchanges" (PBXs), systems that automatically direct message calls between anything from a dozen up to 1,000 or more telephones, computers and terminals.

The PBX market has come to exemplify the clash of the Titans of each of the traditional

business sectors—AT&T, the communications giant, and IBM, the master of the computer universe.

AT&T used to virtually own the PBX business. Ten years ago Western Electric (now part of the new AT & T Technologies group) supplied about 85 per cent of such equipment used in the U.S. Today the picture is very different as new and aggressive U.S. companies and foreign competitors from Japan and Europe have moved into the market.

The new AT & T is struggling to hold on to a 30 per cent market share. Its closest rivals are Rolm and Northern Telecom, both of which claim about 18 per cent of the \$3bn business.

Other major competitors include Mtel of Canada which has just over a 10 per cent share of the market and, despite problems, still dominates the low end of the market, Siemens of West Germany, L. M. Ericsson, Nippon Electric and ITT.

IBM's recent acquisition of Rolm has placed the computer company in direct competition with AT & T. Although IBM has been developing its own

PBX technology for several years having pulled out of a venture with Mtel in 1983 when the Canadian company ran into delays with its SX-2000 switch) and was widely expected to challenge the current market leaders with its own office communications systems, the new IBM/Rolm alliance gives IBM an immediate and strong position in the field.

The PBX is now widely seen as the controlling element in office automation—the hub to which all other equipment will be attached. PBXs use ordinary phone lines to send messages, so they are cheaper and easier to install than alternative networking systems such as local area networks.

The local area network (LAN) was once regarded as a competitive approach to the problem of stringing together hundreds of pieces of office equipment, but is now seen as a complementary sub-set of the office network. The PBX, according to most analysts, will become the universal switching system.

The PBX market can be divided into several distinct sectors: under 200 lines, 200 to 500 lines, and systems capable

of handling 500 lines and more—including the big network switches used by large telephone companies. The factors affecting the purchase decision, the channels of distribution and the competition, are quite different in each sector.

Over the past year, the under 200 line sector has been growing rapidly. Major competitors here include Mtel, Rolm, Siemens and AT & T. These "small" PBXs are sold to small businesses and pricing is highly competitive. By 1990 this section of the market alone will total over \$4bn, according to the analysts L. F. Rothschild.

In the 200-to-500 line sector of the market, AT & T, Rolm, Northern Telecom, Mtel and ITT are the major competitors. Other companies like Intercom, which is 20 per cent owned by Wang, the major office automation supplier, have also emerged as serious contenders in this section of the market. Intercom, with its range of voice/data switching equipment, is 20 per cent owned by Wang, a major office automation supplier.

Manufacturers scramble to boost output: see page 12

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BT's revolution has some way to go

OF ALL the changes which have taken place in the British telecommunications industry since the Government began its liberalisation programme in 1981, probably none has been more dramatic than the upheavals in the organisation and operating methods of British Telecom.

BT is in the midst of something of a management revolution, intended to transform it from a notoriously inefficient civil service bureaucracy, ingrained with a rigid rule-book mentality, into a more tightly-run commercial enterprise which responds aggressively to market opportunities.

The transition still has a long way to go. Many parts of BT are still in considerable turmoil, as its sometimes bewildered staff struggle to adjust to its new role. The quality and reliability of its service—which must contend with the legacy of an antiquated public network—continue to arouse criticism, too.

A blitz on telephone installations has cut the waiting list from 200,000 to around 2,000 in three years, and many of BT's business customers say that it is visibly making a greater effort than in the past to meet their needs.

It has also sharpened up its marketing. It has launched a flurry of new services, such as high-speed data and satellite links, and has moved aggressively to consolidate its position in the apparatus supply market. Too aggressively, according to some competitors, which complain that BT has used deep price cutting and other questionable practices to win orders.

Initiative

The central thrust of the management philosophy implemented by Sir George Jefferson since he became BT's chairman in 1981 has been to break down the highly centralised organisation into a number of devolved "profit centres" and to encourage managers to take the initiative in running their businesses.

The first phase of the reorganisation, begun in 1982, was to split BT into five divisions. They are:

Local Communications Ser-

British Telecom

GUY DE JONQUIERES

Local Communications Services (LCS): By far the biggest division, employing about 200,000 of BT's 240,000 staff, and runs the local telephone network. Responsible for providing most customer apparatus, billing, operator services and callboxes.

● **National Networks:** Runs the trunk network and supplies equipment to large businesses and for services including leased circuits and telex.

● **BT International:** Operates the highly profitable international services.

● **BT Enterprises:** Handles the procurement of customer apparatus distributed by BT and a variety of competitive services offered outside BT's public network function. These include mobile radio, Prestel videotex and Yellow Pages.

● **Development and Procurement:** The purchasing arm responsible for procuring most of the equipment used by BT itself. It also runs the development laboratory in Martlesham, Suffolk.

Substantial changes have been made within the divisions themselves. LCS, for example, plans to strip out a whole layer of regional management and replace the country's 61 telephone areas with 24 districts. A primary objective is to reduce the dependence of operational management on BT headquarters and to increase responsiveness to customers at a local level.

Not surprisingly, perhaps, radical changes rammed through at such speed have sometimes created internal conflicts and loose ends. The precise balance of authority between central headquarters and the devolved operating units is not always clear, and overlaps have arisen between and within the major divisions. One recurrent issue has been how responsibility for apparatus marketing should be divided.

Nonetheless, the prevailing view at the top of BT is that such tensions will resolve themselves in time, and that a period of adjustment through trial and error is inevitable while managers accustom themselves to their new-found autonomy.

Priority

BT's immediate priority is to get a firmer grip on the public network business which provides most of its revenues. It has been granted what amounts to a five-year grace period, during which its only competitor will be the privately-owned Mercury network.

Like most telecommunications monopolies, BT has historically subsidised its unprofitable local network business out of revenues from its highly lucrative long-distance and international services. Because competitors will focus on those services on which BT earns its biggest margins, the company must reorganise its revenue structure.

This is a two-pronged process. One task involves "rebalancing" tariffs, so that they are related more closely to the costs of the services concerned. BT has already begun this process, with the consequences that tariffs for residential services are rising faster than for long-distance services.

To carry this objective through, however, requires much more precise financial information than BT ever needed as a nationalised monopoly. The company is making a major drive to install proper internal accounting systems to provide a clearer picture of where it makes and loses money.

The second prong is to reduce costs and improve efficiency. BT is still saddled with a much older public network than most

of its counterparts in the rest of Europe. By using the latest digital technology in its network, Mercury should benefit from significant cost advantages.

New orders

BT has responded by stepping up sharply orders for System X digital exchanges, which will require far less maintenance than the old mechanical equipment they are due to replace. It is also taking a much tougher value-for-money approach to its main suppliers: one result is its recent decision to seek international bids for a second exchange system to compete with System X.

It also plans to automate much of its internal administration, most of which is at

present performed manually. It aims to invest well over £100m in the next few years to computerise its entire customer service system, to enable its staff to obtain a wide variety of customer information on desktop terminals.

BT has reduced its staff by 15,000 over the past three years. But it still looks heavily overmanned by international standards, with a customer/employee ratio less than half of Bell Atlantic in the U.S. and only two-thirds that of the French telecommunications authority. There are indications that it may need to resort to compulsory redundancies to streamline its labour force in the next few years, instead of early retirements and attrition, on which it has largely relied so far.

BT will also be closely watched in the coming months for signs of how it plans to expand into new areas. Its top executives have emphasised that they see the company developing in future beyond its traditional role in communications transmission and moving more strongly into fields such as information processing and value added networks.

They are convinced that to do this successfully, BT must establish an international presence, particularly in the U.S. It was difficult for BT to diversify overseas while it remained a nationalised industry. However, privatisation has opened the door to such expansion, and BT is studying closely prospects for acquisitions, joint ventures and other forms of link-ups.

UK PABX suppliers

Sub-100 line PABX market in 1983

| | Sales £ million | Market share by units (11,900 units) |
|---------------|--------------------|---|
| BT | 90 | 80.1% |
| Norrim | 3 | 19.5% |
| STC (OCS 300) | 1 | 0.5% |
| | 94 | 100% |

Large PABX market in 1983

| | Sales £ million |
|---------------------|--------------------|
| BT | 28 |
| Telephone Rentals | 10 |
| Plessey | 7 |
| IBM | 7 |
| Harris | 3 |
| STC | 3 |
| Ferranti GTE | 2 |
| Thorn Ericsson | 2 |
| GEC, Mitel, Philips | 2 |
| | 72 |

* Plessey also supplies BT and Telephone Rentals
Source: Scott, Giff, Layton

Rival struggles to take wing

Mercury

JASON CRISP

intention of providing point to point high speed data links for large organisations in England.

Today, it is planning a switched voice and data service for a much wider range of organisations and, with a strong emphasis on international links as well, is spreading its network into Scotland and Wales.

Mercury recognised that it could not be commercially successful if it was restricted to selling leased lines as had been originally envisaged and which was specified in its original operating licence.

"International and public switched services were a substantial source of revenue for BT and if Mercury was to compete it would need to grow in these areas as well," says Sir Douglas.

"Efforts to persuade the Government to extend the Mercury licence in these directions evoked counter arguments from BT that the 'goal posts were being moved'," he adds.

The new licence, published at the end of last year under the 1984 Telecommunications Act gives Mercury broadly similar rights to BT.

Mercury was set up in early 1982 as a joint venture between Cable and Wireless, BP, and Barclays Merchant Bank. In May last year, Barclays Merchant Bank sold its stake to the other two partners, and in August Cable and Wireless bought out BP, paying about £30m for the 50 per cent stake.

One result of the change in

ownership is that Mercury is now forging a much closer relationship with Cable and Wireless which has considerable telecommunications expertise outside Britain.

One result is that Mercury is likely to be closely linked to Cable and Wireless' international operations such as Hong Kong. Effectively, it also marks Cable and Wireless' re-entry into the UK telecommunications market for the first time since the late 1940s.

Currently Mercury is still building its figure of eight trunk communications loop in England which goes from London to Bristol, Birmingham, Manchester, Leeds, Rugby and Nottingham.

Networks

In addition, Mercury has built a local distribution network in London which uses microwave and is to the process of buying the 160-mile pipe network of the London Hydraulic Power Company. The pipe network covers much of the City and West End of London and will provide Mercury with a valuable way in which to reach its customers by cable.

The first links are being made with microwave and then followed with optical fibre cables which are being run alongside British Rail's tracks. The London - Birmingham - Manchester microwave section has been completed and the figure of eight is scheduled to be finished by the end of next year.

It has taken Mercury rather longer to get into operation than was first anticipated. Delays have ranged from internal problems to industrial action by the main BT union, the Post Office Engineering Union and planning refusals for microwave towers.

Most of these hurdles have now been overcome as Mercury has reached an out of court settlement with the POEU and the Environment Secretary has intervened to resolve the dispute over planning permission.

With the basic network only partly complete Mercury is now able to disclose a growing list of customers. These include:

● The Charing Cross Hospital Group which uses Mercury to transmit video pictures between hospitals such as the Charing Cross itself and the Middlesex for teaching.

● The Stock Exchange, stockbrokers Phillips and Drew and Lloyds Bank International will use America, a telephone and data service via satellite between London and New York run as a joint venture between Mercury and Western Union.

● Raci Vodafone, the new cellular radio mobile telephone network, is to use Mercury.

● Customs and Excise and the Central Office of Information are the first Government customers willing to be named and are using Mercury for internal voice links within London.

● Ocean Containers Ltd (OCL) is using Mercury to provide a

link between London and Birmingham for voice, data and telex.

With most of its regulatory and political problems resolved and the basic network nearing completion Mercury now needs to expand its customer base rapidly if it is to survive the fierce competition from the newly privatised BT. It does still have to negotiate with BT on the critical issue of interconnection with its local network.

Mercury intends to specialise in high quality services and expects most of its business to come from four main areas:

● High quality transmission for major users of integrated voice and data services.

● The share use of its system by smaller businesses, using selected switched services.

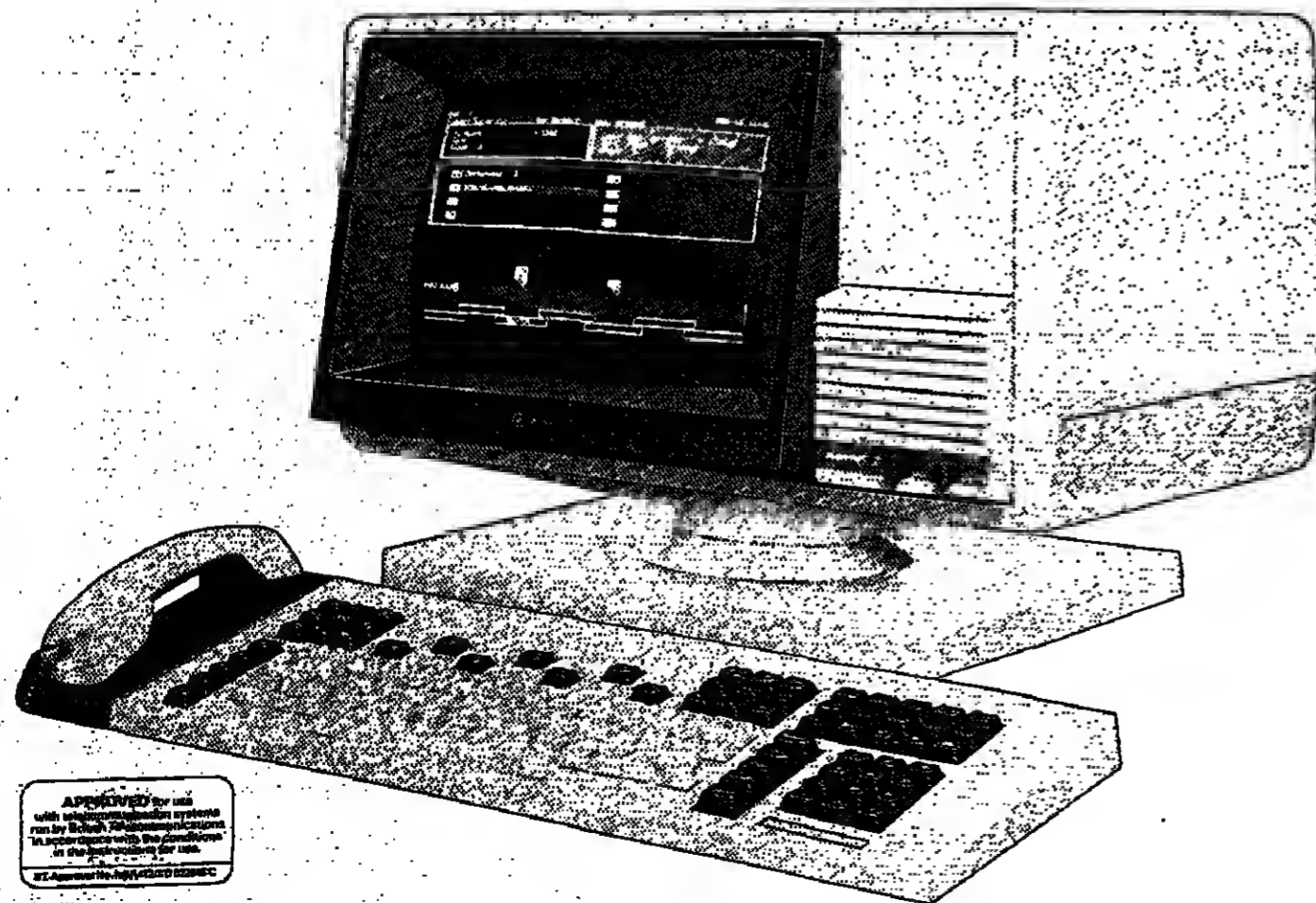
● The transmission and switching of the new and fast growing value added network services.

● Specialised networks. Mercury has a minimum of six years as the only direct competitor to BT's network services, although other competition may develop as the boundaries with value added services become increasingly unclear.

If it does succeed, it could become highly profitable in the fast growing areas of telecommunications. It may also become a model for other countries which want to stimulate competition without going as far as the open house rules in the U.S.

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International Telecommunications 6

Experts to study world developments in technology

Learning how to adjust to the changes

AN EXPERT committee is expected to get down to the task this year of studying how West Germany should face up to the telecommunications challenges of the future.

The Federal Government in Bonn decided some time ago that it wanted a committee to look at the technological changes shaping up and at the steps already taken abroad to adjust to them.

Among other things, the committee is likely to look at the deregulation of telecommunications in the U.S., with the splitting up of AT&T, and the measures adopted in the UK to enervate and partly privatise British Telecom and to allow competition in communications from such concerns as Mercury.

Although the West German committee will have a wide field to study, it is likely to attach importance to the framework within which the Bundespost, the postal and telecommunications authority, already operates.

The fact is that, while measures taken in the U.S., the UK and some other countries have been keenly watched in West Germany, there has been widespread caution about following suit.

Nevertheless, the setting up of the committee reflects some deep-rooted concern among users and equipment suppliers about the way the Bundespost has operated. It also indicates the government's awareness that information technology with its rapid pace of change, is vital to shore up West German industry's competitiveness.

The Bundespost tends to hold firmly to a traditional view of its role as supplier of telecommunications services and is reluctant to yield to competitive influences before the political, financial and social consequences are weighed up.

The most vocal public criticism of the Bundespost has been directed at its role in promoting the "new media" of cable television and videotext (Bildschirmtext), both of which require major investment and are surrounded by some uncertainties.

Beyond this, critics have also queried the financial implications of the whole investment strategy.

Moreover, the Bundespost is widely accused of being bureaucratic and inflexible, in

for the Japanese telecommunications authority may in fact strengthen its monopolistic position because of its role as a supplier of equipment.

In his eyes, the essence of the Bundespost's role is to provide the country's communications network. "We will retain that," he says categorically.

He believes the appropriate place for private competition is the market for user equipment, with the state refraining from producing such equipment.

"We want to offer everyone the same transport medium," he says. "We believe that through interface standardisation, everyone will be able to use the communications network as a transport medium under the same conditions. Competition in user equipment will really become possible then."

Dr Schwarz-Schilling says that he came to office determined to administer the Bundespost flexibly within the existing legislative and regulatory framework.

"I want to use these laws room for manoeuvre," he says. "The previous government used these laws to strengthen the Bundespost monopoly and to limit the scope for private interests."

As an example of a more liberal private enterprise approach, he cites the current policy of allowing private interests the sole right to connect up coaxial cable to TV sets within dwellings, once the Bundespost has brought the cable to the dwellings.

On the Bundespost's purchase of telecommunications equipment, Dr Schwarz-Schilling says he is in favour of opening up West Germany to international competition on the basis of mutual opportunities.

"We will do it only if West German industry has the same opportunities elsewhere. We cannot have liberalisation exist in other countries," he adds.

Dr Schwarz-Schilling does not favour a strict separation of the loss-making postal area from the telecommunications services, whose profits subsidise the former.

He also feels that proposals for the Bundespost to take on the role of a telecommunications carrier, to increase network efficiency including Time Division Multiple Access (TDMA) terminals, and a full range of echo cancellers and shipboard terminals for improved communications with vessels at sea. Our microwave amplifiers and integrated subsystems are heavily used in the defense and commercial communications industries and our software programs for microwave circuit design and management of communication networks are recognized as the leading products available.

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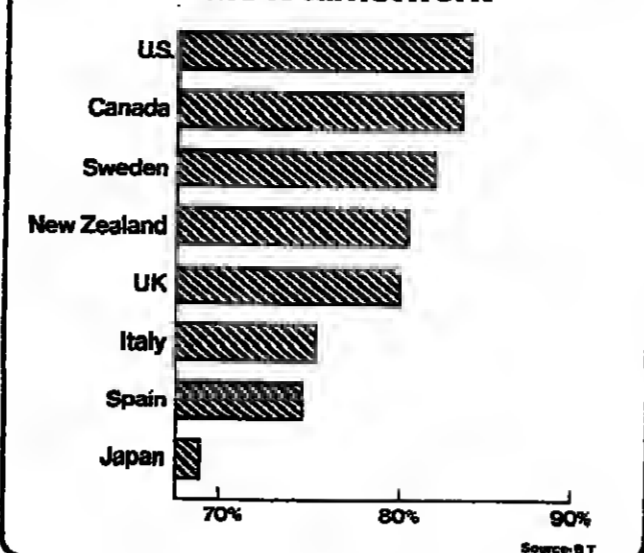
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Proportion of residential connections in the total network



within the postal services to increase productivity and lower running costs.

Bundespost investment is being increased this year by 13 per cent to DM 16.7bn (1985) Dr Schwarz-Schilling says that he came to office determined to administer the Bundespost flexibly within the existing legislative and regulatory framework.

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Changes proceed at a glacial pace

Italy

JAMES BUXTON

ALMOST imperceptibly, Italian telecommunications are changing. Decisions are being taken, and past decisions being implemented. But there is certainly no field—whether it be efficiency of services or deregulation—into which Italy's Telecommunications can be said to lead Europe.

Indeed, so great is the contrast between the glacial pace of change in Italy in telecommunications and the fast-moving scene in Britain that the actions of the British government—namely the privatisation of British Telecom—are followed with almost uncritical awe on this side of the Alps.

There is considerably awareness in Italy of the vasty expanded horizon which telecommunications now have, thanks to digital switching, data transmission networks and all the wonderful equipment that the subscribers can theoretically attach to them.

An elongated country with millions of small and medium-sized businesses could be an ideal market for advanced telecommunications and Italy has a history of skipping generations in technology. For example, it moved onto the telephone in a big way without ever establishing an efficient postal service.

In shops, it is advancing straight from keeping cash in a drawer to using computerised cash registers.

In a past burst of energy in telecommunications, Italy became the first country in Europe to enjoy universal subscriber trunk dialling. But then the telephone system began to decay in the late 1970s as successive governments held down charges for political reasons.

Creaky functions

As a result, Italy in 1982 had 30 per cent fewer telephones per head than West Germany. Almost all its exchanges are electromechanical. There are only half the number of telex subscribers that there are in France and a third of the number in Britain. Almost all Italian services function creakily, and the telephones in Rome almost invariably break down when the autumn rains arrive.

The basic problem is probably that Italy has never had one single, powerful telecommunications utility; instead, the operation is divided between: the Ministry of Posts and Telecommunications; an agency of the ministry called ASST; SIP, which belong to a state holding company named STET; and Italcable, also part of STET.

SIP does, in fact, handle the bulk of telephone calls and is the only interface with the public in the field of telephones. But it has to share its revenues with other organisations, and has no responsibility at all for beyond the telephone calls and the telephones in Rome almost invariably break down when the autumn rains arrive.

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fact that power in Italy is divided between a number of political parties. Almost every sector of Italian life is politicised, and telecommunications is no exception.

However, after years of negotiations a new agreement was signed in the autumn of 1984 between the PTT and SIP and Italcable. The agreement gives SIP responsibility for all switching (while ASST retains transmission), SIP will be allowed to sell as well as lease telecommunications equipment; it will have a slightly less cumbersome revenue-raising procedure; and it will be allowed to operate and market Italy's ISDN system, Itapac.

Responsibilities

Nevertheless, the PTT will retain tele text, and will have the right to establish electronic mail systems. The PTT will still handle calls to European countries, while Italcable will handle most other overseas calls—thus still depriving SIP of revenue which other telephone utilities find very useful.

Even so SIP's position is being enhanced, especially since it will have responsibility for running Italy's ISDN system—Itapac, a packet switching network the basis of which is now scheduled for completion by the end of 1985.

The introduction of Itapac should give an enormous boost to development and marketing. Can the development of telecommunications how the value-added services are in Italy. But much depends on SIP doing this on its own?

The answer is one which SIP and its parent company, STET, are still pondering. Earlier in 1984, it came close to forming a joint venture for overseas development and operation of the services with the U.S. giant, IBM.

Then the top management at STET was changed and the company settled down, under its new managing director, Sig. Giuliano Geronzi, to study two rival proposals: one from IBM and one from Olivetti, the Italian electronics company, which is one-quarter owned by AT & T.

The very idea that IBM might win such a contract provoked bitter attacks on the U.S. company from politicians and from Olivetti itself. It was argued that IBM would be able to impose its own SNA (systems network architecture) on the interface between Itapac and the rest of the network.

But little has been done to pursue this plan, which also faces serious practical difficulties. What would happen to the company which did not win the order?

In particular, what would happen to its Italian labour force?

Although no formal decision has been taken, it seems likely that SIP will order digital exchanges from both companies and that in the future the products may be modified so as to constitute a single switching system.

There is at present no question of opening up the Italian market to any companies that are not already represented and manufacturing in Italy.

Pact extension

She hopes to extend the agreement to Plessey of the U.K. and Siemens of West Germany. She is also pressing for the EEC countries to agree on common technical standards for telephone equipment.

In Italy, Italtel, GTE, and Telettra are assured about 65 per cent of SIP's orders for new exchanges over the next decade. The Government's official strategy was to choose a second exchange from one of Italtel's two domestic rivals, subsidiaries of Ericsson and AT&T.

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Hopes now being dashed

WHEN THE Socialist Government came to power in 1981, telecommunications was one of the few industries that did not need to have its own sectoral plan.

Technological advance and employment prospects, it seemed, were assured by the breakthroughs already achieved under the previous government, from the mid-1970s onwards, progressive installation of digital exchanges (earlier than other European countries), the setting up of additional consumer-based services such as videotext, and relatively sound business opportunities abroad.

Nearly four years later, the outlook is a great deal less comforting. The year 1984 was one that telecommunications industry will want to forget: the only consolation is that, after the dashing of so many hopes, 1985 can hardly be worse.

This decision, which came after a year of top level contacts between British Telecom and the French Direction Generale des Telecommunications (DGT), as well as exhaustive exchanges between the involved, dealt a major blow to French hopes of securing more foreign orders through reciprocal openings of EEC telecommunications markets.

Embarrassingly for France, the British decision was motivated as much by BT's reluctance to buy equipment based on technology that is 10 years old as by Alcatel's unwillingness (given capacity problems in the French industry) to open up some production facilities in the UK.

Significantly, all three of the groupings selected by BT to bid for contracts, AT&T/Philips, Northern Telecom and L. M. Ericsson, have indicated their willingness to manufacture in Britain.

The BT choice was also prompted by its desire, just a month before its huge share flotation in November, to carry out its industrial decisions on

the basis of hard-headed business priorities rather than for the political reason of developing Franco-British links.

The decision did not go down well in Paris, where government officials in the months of prior negotiations showed little understanding of the effect of devaluation would have on BT's attitude. Indeed, in France where the industry's network increased reliance on cash from the DGT to help fund industrial electronics investment has intensified government/PTT links, devaluation would plainly be impossible—even with a change of government—for several years.

Jacques Dondoux, head of the DGT (who has made no secret of his misgivings over international telecommunications deregulation), publicly berated Britain for its "insular" approach in a speech in London last month when he said he was astonished at BT's failure to include EEC manufacturers at its tender.

Although CGE executives pour scepticism on deals such as the AT&T/Philips link-up, a clear impression remains that state ownership of the main French telecommunications companies is a major impediment to cross-border collaboration accords—and that France may thus be falling behind in the international race.

At home, the gloom over the industry has been best illustrated by the recent protest marches around major telecommunications factories in Lannion, Brittany, organised by workers angry over planned workforce cuts in what used to be regarded as a growth sector.

Alcatel-Thomson is pushing through workforce cuts of about 4,000 to adapt staff levels to improvements in productivity and signalling home demand from its relatively early switch to digital equipment, new orders from the PTT for switching equipment are due to fall off from FF 5.9bn in 1983 to FF 4.5bn in 1986.

Success stories

France can still bank on a number of success stories. With the launch last year of the Telecom 1 satellite, France has a European lead in commercial satellite communications, although the venture still has a long way to go before it can be termed a financial success.

In areas like electronic banking, and in the distribution of simple videotext systems for households, France is also increasing the number of consumer products using advances in telecommunications.

Additionally, Alcatel-Thomson, the grouping formed from the pooling of the public telecommunications interests of the Compagnie Generale d'Electricite (CGE) and Thomson groups under their September 1983 accord, is still, on paper at least, the world leader in digital public switching equipment.

In spite of a disappointing export performance lately, and a slump in domestic switching orders, Alcatel officials like to

France

DAVID MARSH

point out that the combined E.10 and MT ranges have been installed or ordered to the tune of 50m lines in 44 countries compared with the single export order received, for instance, for Britain's (much newer) System X.

That said, 1984 has seen a series of setbacks which have badly hit confidence in the industry. Perhaps the gravest failure on the international front has come from British Telecom's decision in October not to choose the E.10 even pre-selection bidding for foreign equipment to be installed alongside System X in the UK.

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International Telecommunications 7

Growing-up pains for state infant

Ireland

BRENDAN KEENAN

IRELAND'S NEW state-owned telecommunications company, Telecom Eireann (TE), has had a difficult first year of existence, since it was hived off from the former Department of Posts and Telegraphs.

The long-suffering customer remains sceptical about TE's promise to create a first-class service. There is a lack of overall agreement on exactly what the Irish telecoms service should provide, and an uneasy row has broken out over money between TE and the Ministry for Finance.

It is important that these difficulties should be overcome because Ireland has the potential to develop, in the words of TE, the best telecommunications service for its size in the world. The Eircom development programme of the last five years catapulted the infrastructure from the technology of the 1940s to that of the 1980s.

The development programme took the bold decision to install a digital trunk switching network. Seven of the eight key exchanges, supplied by Ericsson and CIT-Alcatel, are already in service. Fifty per cent of subscribers should be connected to digital exchanges by 1988. Ireland's first earth station was opened recently, connected to the Intelsat system.

Eirpac launched

The first significant results of this high-technology investment should be seen when TE launches its packet switched data network. This will be known as "Eirpac" and will be similar to the French "Transpac" system.

TE agonised a good deal about the system, wondering if Irish industry and business is sufficiently developed to provide a commercial customer base for the service. An experiment with selected companies has convinced TE's chief executive, Mr Tom Byrnes, that demand may actually exceed their previously best forecasts.

The development of the system has also enabled TE to provide telex on demand in most parts of the country and to introduce a broadcast telex service, with simultaneous transmission to a dozen subscribers. In the long term, the company is looking at the potential in

the fact that much of the east coast is already cabled to receive British TV programmes. Upgrading the cable system to make available a whole range of customer services.

Mr Byrnes believes that the combination of a largely digital telephone network and the Eirpac system could give Ireland an ISDN system (integrated subscriber digital network) in which voice data, image and text could all be transmitted on a single network. There are, however, serious problems to be overcome before this ultimate in telecom technology is achieved.

The biggest practical problem is to be found in Dublin, where years of haphazard urban planning and under-investment in the service have left the city with an inadequate network. Unfortunately, for TE, most of the population, most of the industry and most of the commentators and lobbyists live in the greater Dublin area.

Mr Byrnes accepts that it will take several years to bring standards in the city up to those in the rest of the country—a neat reversal of the usual situation.

Instead, Dublin is to have a cellular mobile telephone system, supplied by Ericsson after some tough re-negotiation of the original contract. The idea is that the business user who must have a telephone, and is prepared to pay for it, will be able to make use of the mobile system while waiting for his permanent installation.

The more fundamental problem concerns the nature of the new service itself. The average citizen perceives the Eircom programme as being designed to provide him with a reliable telephone on the hall table. In fact, there can only be a return on the investment if it not only sells to existing customers but generates new information technology business in Ireland, both home-grown and attracted from abroad. This is well understood, but the planning for it may leave something to be desired.

The development programme itself is a case in point. Companies such as Ericsson's CIT-Alcatel and AT & T established or acquired Irish partners to provide jobs and technology in Ireland supplying equipment. Yet, for such a large procurement, and despite the successes of individual companies like Lake Electronics, there was little effort to promote indigenous supply companies during the programme.

TE remains a monopoly, with

a control over the supply and installation of equipment which can be heavy-handed and bureaucratic. There are signs of a more open approach, however, as the new company grows in confidence.

Companies such as Cognotech, which provides an Irish-based videotex service, believe that, despite the restrictive legislation, the Irish network will, in fact, compare favourably with other European PTTs in terms of liberal access for private enterprise services.

TE itself is willing to join forces with private companies in development of services. It has formed a joint venture with ITT World Directories, primarily to produce Ireland's Business Directory, but with longer-term goals for both partners. TE will have access to ITT's expertise in directory-related services, while the U.S. company wins a link to the major European telecommunications boards on

which TE sits as a national representative. The formation, separately, of ITT Information Service Ireland (ITISI) also suggests that ITT intends being involved in the development of mail and marketing services through the Irish network.

Consortium

TE is also involved with the national broadcasting service, RTE. Allied Irish Investment Bank and Guinness Peat Aviation in a consortium to operate an Irish direct broadcasting satellite (DBS). The consortium, known as Westsat, has also been involved in discussions with Spain and Portugal, which have been allocated the same orbital position, to see if co-operation would make the project more attractive commercially.

The Irish, while retaining a state monopoly, have shown some ingenuity in tapping

private funds for telecommunications development. ITI (Irish Telecommunications Investments) raises long-term loans, backed by Government guarantee, to fund the £1200m programme of the next five years.

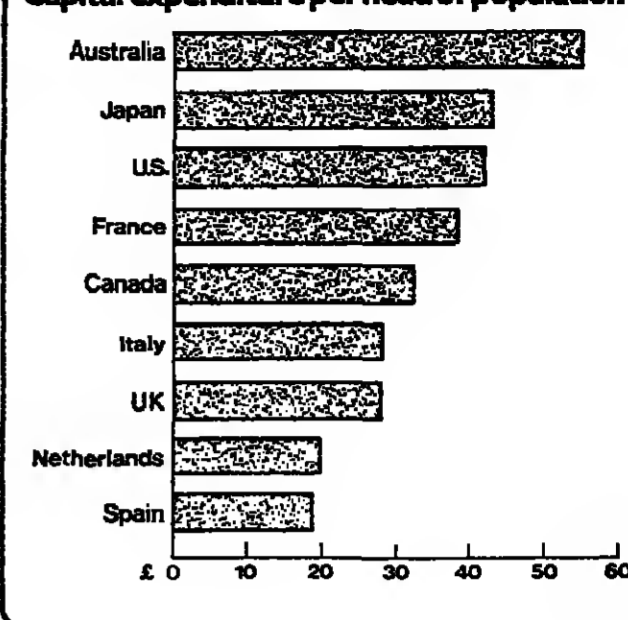
The real danger to all this potential comes from an apparent lack of overall agreement as to how the system is to develop. The row between Mr Byrnes, his chairman, industrialist Mr Michael Smurfit, and the Finance Minister, does not augur well.

The Minister, Mr Alan Dukes, is reluctant to forego the £1100m which the former P&T provided in revenue to the Exchequer. Messrs Byrnes and Smurfit argue that the service was, and is, a net loss-maker, although this did not show up in the system of Government accounts. They claim that to insist on payments on this scale to the Exchequer will condemn

TE to chronic loss-making and threaten the development plans. Mr Byrnes's blunt attacks on the Department of Finance, backed by Government guarantee, has ruffled Irish feathers, more used to smooth handling. The danger is that both Mr Byrnes and Mr Smurfit could quit if they believe TE is to be merely a tax-gathering organisation.

On the other hand, the Government is understandably reluctant to give TE a free hand investing much-needed cash in creating a system which Ireland may not really need. The Irish have always had problems reconciling central government and state industry, and the result has been a plethora of loss-making companies with borrowings in excess of £12bn. With so much money already spent, it is high time the Government had a clear picture of how it wants its telecom baby to grow up.

Capital expenditure per head of population



Telefonica's problem is financing growth

Spain

TOM BURNS

THE GREAT deregulation debate in national telecommunications markets does not apply in Spain. The Compañía Telefónica Nacional de España (CTNE), known nationwide as the Telefonía, was unique in Europe until the advent of British Telecom. Telefonía is, and has been throughout its 60-year existence, a private company with a mixed shareholding.

CTNE's executives believe that, by being a precursor over deregulation, the company has had an edge over other developments in the sector, notably over mixing communications and computing technologies and over establishing hi-tech manufacturing bases in joint ventures with international companies.

Deregulation, in Telefonía's terms, means, however, a close relationship with the Government. The Government in fact owns 47 per cent of CTNE's equity through the Central Bank of Spain and the public sector holding, INI. The company's chairman, is a Government nominee.

CTNE's mixed status has also meant a commitment to maintain a monopoly holding over

the cable network. But there is, nevertheless, a flexible approach towards at some future point liberalising for example, subscriber apparatus.

Telefonía is a national institution in Spain, fundamentally because it is owned by so many people. To own a CTNE share is, for a Spaniard, as much in the natural order of things as is buying a ticket in the Christmas state lottery. The company boasts 750,000 or more shareholders and share distribution is extensive to a maximum degree: 56 per cent of the private shareholders own less than 20 shares.

Sr Luis Solana, Telefonía's chairman, says of the Telecom development: "It's nice to be copied." But he admits also that CTNE and BT will now be in tough competition on the capital markets.

"Our real problem is to finance growth," says Sr Solana. A national telephone company that seeks to be more than just a telephone service (and this is very much the case of Telefonía) soaks up finance, as Sr Solana puts it, "like a sponge."

The debate, according to Sr Solana, should not be over privatisation and nationalisation. In order to keep abreast a telecommunications company must raise capital and it can only do this in the way CTNE has traditionally done so and, as BT is commencing to do,

Other national companies, he predicts, will sooner rather than later be forced to follow the lead.

The real issue is that whatever the public/private equity share, the telecommunications company must plan its investment strategy hand in glove with the Government. The mutual interdependency between the administration and the company is self-evidently necessary in the case of Spain where CTNE has taken upon itself the role of leading the hoped-for Spanish leap forward into the world of hi-tech.

The question

Once that is understood and the deregulation debate ends the immediate question concerns finance. BT has started trading just at a time when Telefonía is preparing to raise funds on the New York, the Tokyo, the Paris and the London stock markets. Foreign capital at present represents some 12 per cent of CTNE's equity and Sr Solana hopes to raise it to 25 per cent.

In the past year there have been encouraging signs. Foreign investors were active in 1983 on the Madrid Bourse and for every Pta 6 worth of CTNE stock traded there, Pta 1 belonged to a non-Spanish investor. Telefonía's shares represent a staggering 20 per cent of the total stock trade annually on the Madrid market.

There is a certain amount of pride at the CTNE headquarters that the United Nations Pension Fund has bought into Telefonía to the tune of Ptas 1bn.

It is not surprising that CTNE should prove a magnet for investors. The company represents 4 per cent of the gross capital formation in Spain, 2.7 per cent of the gross added value of all Spanish services and 1.5 per cent of that of all Spanish companies. With some justification, Sr Solana calls Telefonía "the locomotive engine of the Spanish economy."

Annual growth at Telefonía averaged 24 per cent in the 1981-84 period and investment grew at a yearly rate of 14 per cent. The present four-year plan through to 1988 maps out a total investment of Ptas 929bn and guarantees an annual dividend of 11 per cent.

The coming years are the ones of the great leap forward. The conventional telephone service is not forgotten, as it cannot afford to be, in Spain: by 1986 the expectation is to have raised the 1982 statistic of 40 per cent of homes with a telephone in Spain to 50 per cent. But the jump comes in the other services: more than 4,000 videolex terminals in 1986, against zero in 1982 and more than 5,000 dataphone terminals, again from zero, in 1982.

The idea is that the public should see in Telefonía much

more than just the phone. Sr Solana, a man of irrepressible energy, is visionary about what CTNE is all about: "Telefonía has to be associated with modernity, with development and with research."

Standard bearer

He is enthusiastic about the blurred lines between communications and computing. "IBM is now diversifying into communications and AT & T into computers," says Telefonía's chairman, to underline his point.

CTNE is determined to be well entrenched in the hi-tech sector and in this sense it sees itself as the standard-bearer for Spain. Sr Solana pulled off a major business coup in 1984 in the shape of a joint venture between CTNE and AT & T. The U.S. telecommunications and electronics group will establish a \$200m semi-conductor manufacturing base in Spain and, by 1990, will be exporting from the projected plant in Madrid around 80 per cent of its production.

The Telefonía agreement with AT & T was a perfect marriage of convenience and both the Spanish company and the Madrid Government were willing to provide a generous dowry: AT & T provides 80 per cent of a \$65m operating capital, while CTNE puts up the remaining 20 per cent. Official

Spanish subsidies of \$80m and state credits worth \$73m make up the \$200m total investment.

For the American group, Spain became its operating base for Europe ahead of Spain's expected entry into the EEC on January 1 1986. AT & T aims to build up a European market neatly dovetailed with the Madrid industry ministry's national electronics plan that provides for \$530m to be spent between 1985-89 to support high technology production in Spain for export.

The agreement confirmed the role that Telefonía is called upon to play in the promotion of electronics. A similar move involves negotiations that were taking place at the end of last year (i.e. late November 1984) between CTNE, the Japanese group, Fujitsu, and Spain's national computer manufacturer, Secolisa, which is owned by the public sector holding, INI.

Both Telefonía and Fujitsu are minority shareholders in Secolisa. And Sr Solana is seeking to have INI reduce its equity substantially in order to let CTNE and the Japanese group have a controlling joint stake in the company. The negotiations underline the trend established by the AT & T joint venture and the future characterisation of Telefonía as a computing and telecommunications broker.

The world's largest international digital telephone exchange supplied to British Telecom by Thorn Ericsson.

British Telecom's newest international, fully electronic digital telephone exchange makes the rest of the world a little more accessible. The newest exchange at Keybridge House, London, brought into service in 1984, is the biggest international digital exchange in the world. It is capable of handling 150,000 calls an hour.

When fully extended, the exchange capacity will increase to over 1/2 million calls an hour. Well able to cope with the growing number of international calls, which are doubling in number every five years.

Sheer volume is one thing, quality is another.

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They selected Thorn Ericsson's digital AXE 10, already the

world's most widely installed modern public exchange.

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Thorn Ericsson is a British Company with substantial modern manufacturing resources in Scunthorpe, South Humberside, and access to the most advanced software development. During 1984 a large investment programme in a training complex will cater for the ever increasing needs of our staff and customers to keep up to date with the latest technology.

The achievement of Keybridge follows Racal Vodafores' selection of our equipment for their cellular radio mobile telephone network here in Britain, which includes the AXE 10 exchange.

The order for this highly specialised cellular radio equipment is also the largest in the world.

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International Telecommunications 8

Ambitious plans to reshape system

Netherlands
LAURA RAUN

WITH HOPES of exploiting the information explosion, the Dutch have ambitious proposals to reshape their serviceable but outdated telecommunications matrix into a modern system, weaving together satellite, computer and fibre optics technologies.

The city of Amsterdam recently unveiled its programme to stimulate telecommunications information technology, or what the Dutch call "informatica," as part of a national effort to develop a co-ordinated policy.

The Dutch capital, which already has the largest cable-TV network in Europe, will install a fibre-optics network that eventually will tap into a telephone, a groundstation for satellite communications.

A key component in the modernisation proposals is the increasingly-likely deregulation of the Governmental Post-Telephone-Telegraph (PTT) agency, which currently has a monopoly on telecommunications services. A relatively even-tempered debate over restructuring the PTT has been conducted for more than a decade, accelerating a couple of years ago with the release of a special commission report looking into the matter.

But even the so-called Swartouw Report failed to send many sparks flying, despite its recommendation that the PTT assume a more independent role from the Government, that private competition be allowed for peripheral telecommunications equipment and high technology services while the PTT's monopoly over the communications infrastructure and traditional services would continue.

The Swartouw Commission, which was named after Fokker chairman Frans Swartouw, who chaired the group, recommended that the PTT become a limited liability company held entirely by the state. The PTT would maintain its monopoly over telephone, telegraph and data services but would lose exclusive control over the emerging services that combine

computer and communications technologies.

Private companies would be allowed to operate in interactive videotex, video conferencing and electronic mail, for example, while the PTT could compete if it chose to do so.

Early this year the Government went even further, recommending that PTT spin off its banking activities into a "postbank," be allowed to invest up to Fl 50 (\$18.3m) a year in risk capital and to participate in joint ventures more easily.

Moreover, the center-right Government said the communications structure ought to be integrated with the closely regulated cable-TV network into a futuristic system capable of transmitting "visual sound, numerical and data information."

Argument
In setting out its "informatica" policy, the Lubbers administration unequivocally advocated growth in this area, arguing that to do nothing would leave the Netherlands increasingly behind the Western World. Given the good infrastructure and related institutions, the Netherlands is well placed to develop the new computer-based media, particularly if the private sector is unleashed, the Government averred.

A new panel, known as the Steenberghe Commission, is currently studying the structure and future of the PTT, with an eye toward the Swartouw recommendations. Meanwhile, a separate inquiry is to be conducted into the possible integration of the traditional communications services with the cable-TV network.

Three-quarters of Dutch homes are already wired for cable, one of the highest saturation rates in Europe, while 35 per cent of the telephone exchanges are digital and the rest should be converted from the old electromechanical type by the year 2005.

The Netherlands has two video conferencing studios available for a satellite link-up involving France, West Germany, Italy and the UK, plus a burgeoning radio-telephone

system and an interactive videotex system known as Viditel.

The cable-TV network, which is operated both by private companies and municipalities, does not yet offer subscriptions. TV, following repeated delays, this will begin next April, expanding the current fare of neighbouring countries' Government-controlled channels, the domestic headline service and a couple of entertainment programmes from Britain.

Television-programming companies wanting to provide subscription-TV must get permission from the Culture Ministry and then find a willing cable operator. The flurry of applications suggests stiff competition in the coming months as programmers and cable operators bustle to position themselves.

The drive towards communications deregulation, which began in 1983 with the ending of the PTT's monopoly over radio and TV broadcasting, has drawn surprisingly little fire from the PTT.

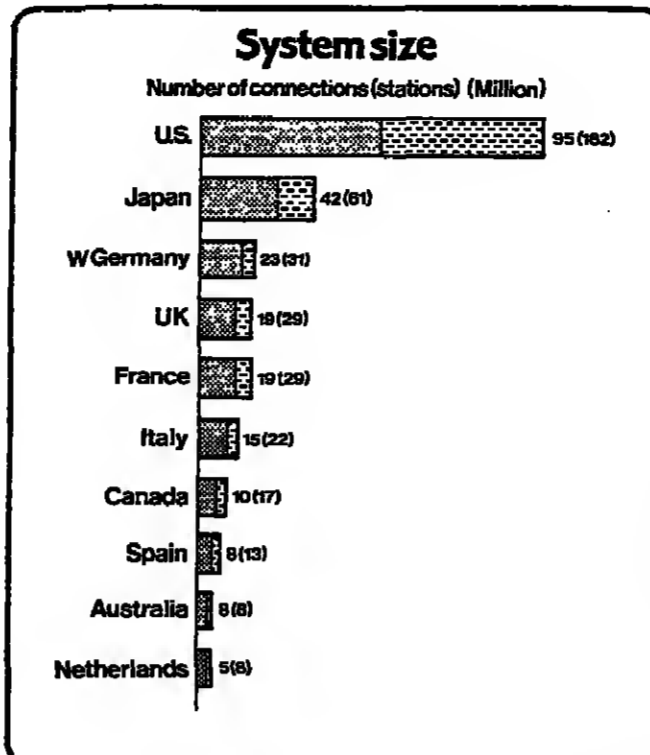
The agency relies entirely on the Government for funding but is able to plan multi-year investments because of non-statutory agreements. The Swartouw Commission avoided some potential criticism by choosing a high PTT official as its secretariat while its findings generally have been accepted by the new PTT director-general, Cor Wit.

Wit, however, does fear that if the PTT loses its sole control over peripheral equipment, the quality will deteriorate with the entrance of Mickey Mouse phones, for example.

Actually, telephones not supplied by the PTT are already available but the PTT looks the other way since it has a monopoly only over the telephone connections and not the apparatus.

In contrast to some PTTs in Europe which exclude foreign companies as suppliers, the Netherlands relies on two consorts abroad in addition to Philips as its main suppliers. Siemens of West Germany and Ericsson of Sweden rank alongside Philips, the Eindhoven-based electronics giant.

Two years ago Philips estab-



● The U.S. has by far the world's largest telephone network, which has roughly twice as many telephones as the second largest country, Japan. The networks of the European countries are roughly the same size, with Germany in the lead.

The chart above shows the

number of exchange connections, party lines and telephone in use in the world's 10 largest networks. These figures exclude the USSR, which would rank around 6th position. British Telecom operates the 4th largest telephone network in the world.

lished a joint venture with American Telephone and Telegraph (ATT) in the area of digital telephone-exchange switching systems and had to compete head-on with Ericsson, which had already installed a number of switching systems in the Netherlands.

Major order
The Dutch PTT this year awarded Philips-ATT a contract for five of their SESS-PRX systems, which was the second major order received following a contract from Colombia.

The American-Dutch venture is competing fiercely with both Ericsson and Siemens for the lucrative digital switching system market. Included among potential customers are British Telecom and Italy's State-owned telephone company, Philips-ATT has joined forces with France's CIT-Alcatel to make an unsolicited bid to supply Venezuela with the advanced telephone exchange systems.

In parliament recently, the opposition Labour Party successfully sponsored a motion to postpone all debate on possible

privatisation of the PTT until after resolution of a highly controversial proposal to transfer thousands of PTT workers to Groningen.

With 105,000 employees, the PTT is the largest employer in the Netherlands and must bargain with the civil servants union. Jaap Van der Doef, the Labour Party member who sponsored the motion, says the Socialists believe the PTT should be given more independence from the Government, including the ability to raise capital on the private market and more liberal conditions for engaging in joint ventures.

But the Labourites oppose the splitting-off of the PTT's bank-log functions and the deregulation of the new media area.

The Liberals, avid supporters of the private sector, favour the abolishment of the PTT's monopoly over the enhanced telecommunications services and the opening up of market competition. The Christian Democrats, the senior partners along with the Liberals in the government coalition, generally agree with the Liberals.

Sweden

DAVID BROWN

DEREGULATION is a relative word. In Sweden, for example, it is applied to proposals to break the Televerket's (PTT) monopoly on telephone bands, rather than thoughts of broad-ranging competition in providing services.

Televerket is expected to seek Government approval for deregulation of handsets this month, despite strong opposition from the trades union.

In fact, this monopoly only exists on paper, as a growing number of handsets are already purchased on the open market, sometimes at a quarter of the price of "official" tele-

Telephone tariffs are among Europe's lowest

Televerket's monopoly remains impregnable

Sweden
DAVID BROWN

leading edge in the development of new equipment and services.

The I. M. Ericsson Group was one of the first to market an all-digital public switching system — the AXE — which has been sold to nearly 60 countries with a total of nearly 10m subscriber lines installed or on order.

Ericsson had annual sales of SKr 25bn (\$3.1bn) in 1983 and 70,800 employees, making it one of Sweden's top 10 industrial corporations. In the space of the past five years, it has increased its share of the world telephone exchange market by 3 per cent to 13 per cent today, helped by the introduction of the AXE system.

Much of Sweden's research and development of telecom equipment, including that of the AXE system, is centred in Elmstet Utvecklings AB, which is Televerket. Equipment BT can jointly own by Ericsson and Televerket. Equipment developed at the subsidiary is manufactured by the PTT's industrial services division, Tel, for use at home. Ericsson produces the same equipment for sale abroad. Only a small proportion of Televerket's needs are met by foreign suppliers.

In the mobile telephone area, where the Nordic Mobile Telephone Network (NMTN) has topped the 100,000 subscriber mark and is the largest and fastest-growing system in the world, terminals are marketed by some 40 private companies, led by L. M. Ericsson and Mobira of Finland.

Abroad, Ericsson is concentrating on selling infrastructure equipment, and has won key orders for complete cellular systems in Chicago (home town of its arch-rival, Motorola), and in Buffalo and Detroit in the U.S. as well as Toronto in Canada.

The NMTN is an example of the broad-ranging co-operation in the Nordic region in the planning for telecommunications services, formalised in a 1980 agreement signed by all four PTTs. The development of a joint telecom satellite was the subject of extensive wrangling, but agreement has

been reached between Sweden, Finland and Norway to proceed on the SKR 15bn Tele-X project.

Another recent Televerket innovation is the Mobilnet system, which combines a mobile trunked voice and data channel, mainly for closed systems.

Potential applications would let a salesman, for example, access his office computer via the public telecom network to check inventories en route to a customer, a newsmen to receive telex messages, and a visiting doctor to check a patient's medical history.

Pilot projects are already under way, with full-scale introduction expected in about two years. Televerket expects some 40,000-50,000 subscribers within a decade.

New services

The Televerket has introduced a number of new services recently. These include Datatex, a data communication network with some 9,000 subscribers, and an international packet switching service.

The public data network has been used, for example, by the Scandinavian Multi-access Reservations for Travel Agent system. It allows an agent to use one terminal log into a number of reservation and information systems. This means a voyage-involving, for example the SAS airline and the SJ state railway can be booked on one screen.

Banks have become important users of the Datatex system. Swedish companies have become important players in the market for specialised banking software and terminals.

In late 1982, it launched a Teletex network and terminal system, (already available in Germany and Canada) which provides access to the international telex system, but allows a 30-fold increase in transmission speed.

A number of large private companies have been aggressively positioning themselves to move into the potentially large cable-TV market, now operating only on a trial basis mainly in Lund, Gothenburg and Stockholm, with some 40,000 lines. It is thought that Televerket will control roughly two-thirds of an expected 1m lines by 1990.

Key decisions still awaited

Belgium
PAUL CHEESNIGHT

GROWING financial problems at Regie Des Telephones et Telegraphes (RTT), the Belgian state telecommunications monopoly, allied to the onset of a new phase of major development expenditure, have created a crisis of confidence in the new generation of digitalised exchanges.

The questions are how will the contracts be apportioned and how will they be paid for. But this comes at a time when RTT is finding its burden of debt increasingly difficult to handle and when serious doubts are being raised about whether it can continue in its traditional way or whether its monopoly powers should be further eroded.

Accounts
RTT in October presented its annual accounts for 1983. These showed its loss had been reduced marginally from Bfr 1,72bn to Bfr 1,67bn for the 12 months on a 9.1 per cent increase in turnover to Bfr 51.6bn. Investment cost nearly Bfr 21bn, but financial charges increase by over 17 per cent.

In total RTT has Bfr 180bn of debt outstanding and nearly 30 per cent of its receipts are necessary to meet charges on this.

And the burden has recently been increased with RTT going into the market for Bfr 15bn. Also just at the time when a considerable portion of debt will need either to be refinanced at higher rates of interest or paid off, the company will be pushing ahead with its new system of digitalised exchanges.

This creates a number of problems. It would be possible to ease the burden of new investment by a system of leasing new equipment. This is an idea which Mr Herman de Croo, Minister for Communications, is considering. He represents part of the wing in the ruling coalition government

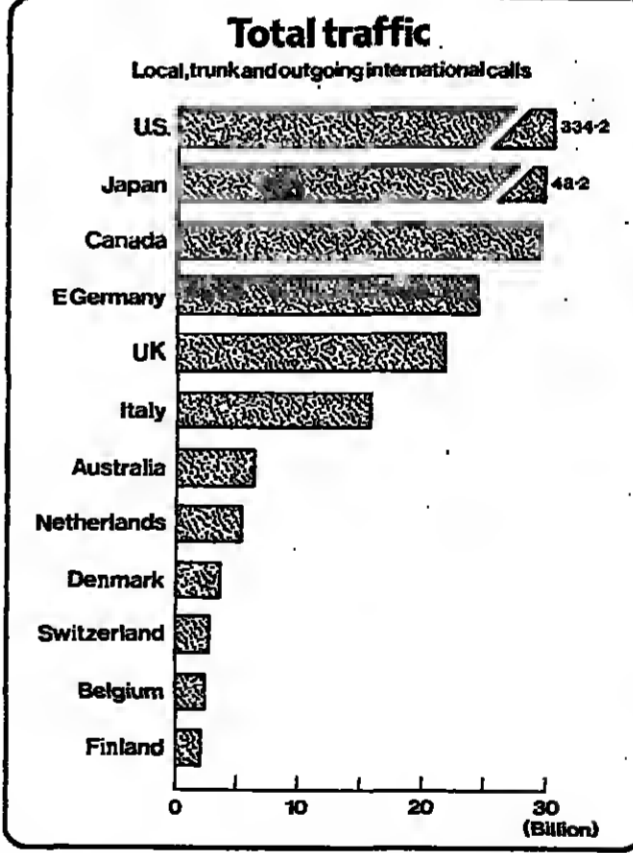
which would like to chip away at the power of state monopolies.

But Mme Paula D'Hondt, State Secretary at the Ministry, is opposed to such a course and there is opposition from the trade unions. There is the fear that unless RTT continues in the way it has worked since its foundation in 1930, directly owning the equipment and providing the services, then the first steps towards privatisation will have been taken.

Leaving aside the question of union opposition, the fact is that there is no unity of approach in the ministry handling the future development of RTT, and this division is likely to be repeated in the coalition itself. In the coalition, however, other forces will come into play.

On the political scene, ideological argument about the role of state monopolies is less important than the rivalry between the disputatious Flemish of the north and Walloons of the south. In telecommunications this dispute is centred on the way equipment contracts are shared between the two regions.

Earlier this year, the Walloon Social Christians, a fixture in recent coalition governments, produced a report showing that the majority of telecommunications equipment contracts were being placed in Flanders and



that the balance needed to be redressed towards Wallonia.

One of those involved in the report was Mr Philippe Maystadt, Minister of both Science and the Budget, who plays a role in the development of telecommunications policy in both capacities.

Against this background, internal scrutiny and debate about the new exchange contracts will take place. For generations, RTT has relied on Bell Telephone and GTE-ATEA, in portions of three to one, to meet demand for new exchanges. As part of his policy of liberalisation, Mr de Croo would like what looks to be a cosy relationship to be broken. So more companies are being invited to put in proposals.

Links
They include Siemens of West Germany and Philips-Moble of the Netherlands, both of which have in any case a substantial presence in Belgium. But there is also Ericsson of Sweden and CIT-Alcatel of France, both of which have forged links with Belgian Groups, the former with Atec, the leading electrical group in Wallonia, and the latter with Societe Generale de Belgique, the leading national finance and industrial holding company.

The case for widening the network of supplies depends on

the speed of expansion of the network. If the work is done gradually, then there is a case for keeping the existing pattern. But if there is to be a rush towards digitalisation then suppliers can more readily be brought in.

At this point the de Croo-D'Hondt differences surface again. The former is said to be anxious for speed, the latter for more carefully phased approach.

Indeed, the concern of Mr de Croo to enlarge the number of PTT subscribers is said to be one reason why he has leaned on the company not raise its charges. This in turn is one reason, it is argued, for RTT's financial problems.

Out the question of the contracts will not be settled on economic or financial grounds. In the end it will be political. Mell Telephone accepted this when it sought and finally failed to forge a relationship with ATEC in order to span the communal divide. Cutting the cake is likely to be one of the major problems facing the coalition government in its last few months of office. RTT will simply have to pay the price for keeping the communal balance.

It is already accepted that RTT cannot be solely responsible for providing all the equipment and services for the increasing range of demands being placed upon it. And, certainly as it has shown, with a recent contract to provide a staging post for the traffic generated by microwave communications of the U.S., it is ready enough to profit from the liberalisation programmes of other countries.

It will continue to provide the basic telecommunications facilities in Belgium. But Mr de Croo points out that his approach of terminals or categories of terminals is not rigid. In response to criticism from local American businessmen about the shortcomings of the RTT services.

"This is the case for the PAX of more than 10 interior lines. More than 25 per cent of the telephone apparatus in Belgium is supplied by private industry. A lot of accessories, such as automatic answering machines, automatic call diverters and alarm transmitters are exclusively supplied by the private sector."

"I have decided to accentuate this liberalisation, so that the telecopiers, the terminal telephones, the second telephonic apparatus — and more particularly the wireless telephonic apparatus — will be supplied in competition with private suppliers. This liberalisation policy will be applied for all the new terminals," he said.

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International Telecommunications 10

Foreign companies will have an important role to play in the fast-changing Japanese telecommunications market.

Signs of vigorous expansion ahead

Japanese Government policies
ROY GARNER
IN TOKYO

TELECOMMUNICATIONS ranks alongside biotechnology as one of the most promising technology-driven growth areas in the Japanese business world.

Market take-off is expected to occur with the forthcoming privatisation of the government telecommunications monopoly Nippon Telegraph and Telephone (NTT), a growing liberalisation of advanced telecommunications services and progress in the "wiring" of the nation as part of the INS (Information Network System).

The first step in the process is the planned reorganisation of NTT which is scheduled to begin on April 1, 1985. Initially this will not entail a divestiture along AT & T lines as in the U.S. but, if Diet (Parliament) approval is given, the company will be able to go up to 49 per cent public.

Momentum is already coming, both from the vigorous activity of outside groups preparing to offer alternative services, and from a wider consciousness in the nation as a whole that Japan has to increase the rate of its development of telecommunications services if it is to keep abreast of internal demand for broader, faster and more efficient services and, in addition, match the standard and quality of services becoming available in Europe and the U.S.

It is increasingly assumed that such progress would be unlikely to materialise within the present NTT-dominated environment.

Time-scale

It is important to note, however, that although April 1985 is the date when, technically speaking, services can be started by private firms, there is likely to be a delay of as much as two years before such services actually materialise.

A case in point is the digital information link between Tokyo and Osaka proposed by Daini-Denden, the first established NTT-competitor organisation. Owing to cost factors, the company has had to give up its preferred plan to use a satellite communication system, and the microwave circuit it plans to use as an alternative is to be constructed by NTT (from which it must obtain permission for its use), and has a completion date of 1987 at the earliest.

Foreign firms will have an important role to play in the Japanese market, and an early sign of the preparedness of the government to recognise this fact came in April last year when AT & T landed a U.S.\$49m contract to supply mini-computers to NTT.

For AT & T the contract represented both the acquisition of a major Japanese customer and an early success as a hardware supplier. NTT contracted to buy 60 of the 3820S super mini-computers, one of AT & T's most sophisticated products, for use as the core of a new nationwide system, designed to coordinate the flow of telephone traffic which will go into operation during 1986.

The U.S. had frequently mentioned super mini-computers in its calls to NTT to purchase more foreign telecommunications equipment, and the AT & T contract was seen as a significant move by the Japanese towards easing trade tensions between the two countries. The deal was the largest single contract awarded to AT & T since NTT signed a cross-licensing agreement with the U.S. corporation in October 1982.

Scepticism

NTT's plans for a new telecommunications era has aroused much favourable interest. There is, however, some scepticism over its much-vaunted plans to invest ¥20 trillion in a new digital network linking the corners of the country by the end of the century. Critics argue that this effort is little more than window dressing for what is in fact an attempt by NTT to ensure it has the trunk lines in place in time to compete with private cable TV and data transmission companies, towards the end of the century.

This doubt over how much the average citizen will benefit from the advances planned in telecommunications has been compounded by recent government studies which showed that only a tiny percentage of the Japanese population has any idea what the various "new media" proposed actually are.

NTT's experiments with videotex in its Capital system have had similarly discouraging results so far, with the majority of participants in home-use trials reporting that the main users of the equipment have been the children playing video games.

The videotex scene has been enlivened recently, however, with the launch of Video Japan Network, a new venture backed by eight Japanese companies which aims to start a rival videotex service in the Tokyo region. Video Japan is based on the U.S.-developed NAPLPS (North American Presentation Level Protocol Syntax) system, and initially will handle entertainment and shopping services.

A new government initiative was introduced in October last year. Under the plan, "new media" techniques are to be introduced into eight regional centres across Japan in an effort both to promote their dissemination in areas outside the Tokyo-Osaka population centres, and to provide an opportunity to assess the influence of such technologies on the business practices and family life of

regional communities.

The International Trade and "New Media Community Project" will be much larger in scale than the similar experiments carried out by NTT in Tokyo's Mitaka area.

Interactive Cable TV (CATV) videotex and home banking will constitute the core technologies of the tests, and these will be implemented on an as yet unannounced scale within eight "new media network model areas" in locations which include Morioka in northern Japan, Yokohama, Kumamoto and the Oita-Bepu-Kunisaki "technopolis" in Japan's southern island of Kyushu. The new media equipment will be installed in companies, public organisations and households and will be monitored closely by agencies of the MITI.

The videotex experiments are likely to be based on the NTT Capital system, developed as part of the INS project, which aims to provide videotex service throughout Japan by 1987. It became commercially available in the Tokyo and Osaka regions from November 30 last year.

A key aim of the MITI venture is the matching of technologies with local conditions. In the Oita "technopolis" region, which lies in Japan's "silicon island," the chief users of the new media will be high-tech companies, among which are likely to be some of the booming semiconductor firms. In contrast, in the rural Hassel area of Ehime prefecture a major mandarin orange producing centre, agricultural co-operatives will be the main users and will be linked directly with relevant facilities such as local weather observatories and shipping and transportation departments.

Experiments

MITI has not yet indicated how closely the "new media community project" will resemble the previous INS experiments of NTT, but the government is known to be highly conscious of the need to promote a high-technology oriented lifestyle among its citizens, as part of its wider industrial strategy, and observers suggest this latest project is an element of the government's attempt to boost a process which is not so far occurring naturally, nor at the required speed.

Another recent experiment with new media has been carried out by NEC which introduced "telecomputing" for some of its employees who currently handle data processing work from their homes.

A "satellite office" has been established close to a large residential area, and groups of employees from the vicinity work together in a workshop setting, enjoying the communal atmosphere so widely preferred by Japanese workers.



The control room at Mitsui Communications Division in Tokyo.

New challenges confront industry

Japanese manufacturers
ROY GARNER

THE forthcoming reorganisation of the government-run Nippon Telegraph and Telephone (NTT) promises to set in motion a drastic reshaping of the Japanese telecommunications market.

Activity is already brisk among both foreign and Japanese telecommunications firms as they prepare to make the most of the new opportunities the liberalisation moves will bring.

Two recent reports issued by the Electronic Industries Association of Japan (EIAJ) and the Communications Industries Association of Japan (CIAJ) predicted that demand for telecommunications equipment and computers in Japan would maintain double digit growth over the next five years, despite the present sluggish economic climate, with sales of telecommunications devices reaching ¥1,430bn in 1987, an 11.4 per cent rise over 1982 levels.

The associations said that growth would be centred on the sale of sophisticated products aimed at the office automation and information network system (INS) markets. Private sector demand is expected to increase by around 2 or 3 per cent while public sector demand drops by as much as 5 to 6 per cent.

Interest is currently focused on the emergence of new organisations designed to compete with NTT, and especially on new alliances being forged between firms already in the field. Among foreign companies, AT & T of the U.S. has already gained a particularly high profile.

The first established competitor organisation, Daini-Denden (literally 2nd NTT), is an amalgam of 25 firms, most of which are venture business organisations. The company which has led this movement, Kyocera, has already acquired near-legendary status, and an extraordinary stock market rating, for its

entrepreneurial efforts both in this venture and in its pioneering work on ceramics technology. Other respected venture-oriented companies in the group include Sony, Secom and Ushio.

The commercial possibilities within the new telecommunications field appear set to produce some uncharacteristic co-operation between different forms of business organisation. Noburo Goto, president of the Japan Chamber of Commerce (JCCI), who is acting as a special adviser to Daini-Denden, recently said that he was not opposed to his organisation (which deals largely with small-scale businesses), and Keidanren (an organisation of big business companies) acting together in a single enterprise which would share the benefits of use of a costly communications satellite.

Alliances

There also promises to be an upsurge in business tie-ups between small venture business firms and some of the industry giants. In fact Shingo Moriyama, vice-president of Kyocera, and president of Daini-Denden, recently described this as essential for the new private telecommunications service.

In addition to the Daini-Denden group, competition with NTT has also been proposed by the Japan Highway Public Corporation which, together with the Ministry of Construction, and supported by dozens of companies in the automotive, electronics and general fields, plans to lay an optical-fiber network on the Tokyo-Osaka route.

A similar plan is proposed by the Japan National Railways for an optional pathway along the tracks of the Shinkansen "bullet train." This enterprise goes under the name of Nippon Telecom Co. and is supported on an initial equity basis by more than ten dozen companies.

Other new telecommunications groups include a communications satellite operating and transponder-leasing group organised by Mitsui and C. Itoh two leading trading firms, which will operate together with the communications subsidiary of spacecraft manufacturer, Hughes Aircraft.

International comparisons in telecommunications

| | U.S.* | Japan | W. Ger | FR | France | Sweden | Hong Kong | Australia |
|--|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Dec '82 | Mar '83 | Dec '82 | Mar '84 | Dec '82 | Dec '82 | Dec '82 | Dec '82 | Dec '82 |
| Telephones per employee | 188.8 | 185.5 | 154.9 | 121.7 | 180.9 | 173.4 | 162.5 | 92.5 |
| Exchange lines per employee | 98.0 | 128.6 | 111.5 | 83.2 | 119.9 | 124.2 | 123.3 | 62.3 |
| Telephones per 100 population | 76.0 | 52.0 | 50.9 | 51.7 | 54.1 | 85.6 | 28.5 | 54.0 |
| Residential exchange lines per 100 households | 94.8 | 78.3 | 71.7 | 76.4 | 78.1 | 96.0 | 83.3 | 55.0 |
| Revenue per employee (¥000) | 41.3 | 32.8 | 32.8 | 28.5 | 31.5 | 31.8 | 19.2 | 21.2 |
| Calls per exchange line | 3,521 | 1,084 | 1,064 | 1,149 | n/a | n/a | n/a | 1,170 |
| Capital investment per line (¥) | 141.4 | 113.7 | 126.2 | 72.5 | 117.3 | 70.9 | 90.7 | 266.4 |
| Proportion of exchange lines electromechanical (%) | 31 | 79 | 99 | 63 | 11 | 83 | 60 | n/a |
| Electronic (%) | 62 | 18 | 1 | 36 | 82 | 7 | 35 | n/a |
| Digital (%) | 7 | 3 | 1 | 1 | 37 | 7 | 5 | n/a |

Notes:
* AT&T and other common carriers together with the local telephone companies, including the Bell Operating Companies.
* Hong Kong Telephone Company only.
* The figures for West Germany, France and Australia are SGL estimates.
Source: Scott, Goff, Layton

The keyword in attempts by Japanese companies to crack the NTT stronghold is certain to be co-operation. This will be necessary not just because of the enormous capital investment involved (some estimates cost initial outlays at ¥20bn for satellite facilities and ¥30bn for fibre-optic pathways) but also because of the diverse range of technological expertise which will be required. In this latter respect, interest is also strong in the participation of foreign companies. Morioka of Daini-Denden has already upset Japan's telecommunications satellite makers by suggesting U.S.-made satellites will be a more efficient choice than their Japanese counterparts.

Foreign involvement in Japan's telecommunications network has also been conspicuous in relation to the provision of VAN (value added network) services. A measure of liberalisation has already been introduced in this field, and the flurry of activity which the "new" area of business has prompted offers some indication of the readiness of Japanese companies to move into the area of telecommunications business as they become accessible.

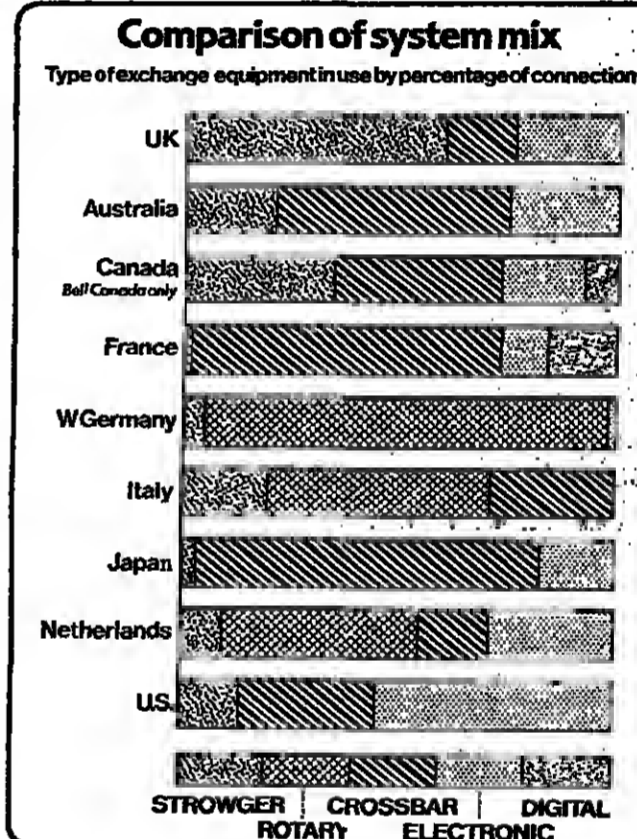
Japan's first private VAN services began in November 1983, and there are currently at least

Interest

17 VANs in operation nationwide, run by 13 information processing service companies. These "local" specialist companies, the best-known among which is Inter, have recently launched intensive sales campaigns aimed at banks, supermarkets and motor-vehicle dealers. Strong interest in the provision of such services has also been shown by major business groups such as Mitsubishi, Dai-ichi Kangyo Bank, which wish to take advantage of the extensive communications networks they already possess for internal use.

IBM Japan Ltd is aiming to advance into VAN services through a firm it has set up together with Mitsubishi and Cosmo 80, called AST. The new company will make use of IBM's "AST" information network software. IBM Japan is also said to be considering setting up independent VAN services.

It is too soon, however, to be confident that foreign concerns will set an equal crack in the Japanese telecommunications market. In February last year a government advisory panel made up of representatives from banking, communications, transportation and trading companies advocated closer ties between government and industry in the development of telecommunications networks of the future. The panel also urged Japanese industry leaders to develop independent VAN systems as a form of protection against U.S. advances in the field.



While Strowger and Rotary systems form the backbone of the international exchange network, Japan's network is based largely on the Crossbar system.

Moves to control pace of change

MANY OF the forces that have brought greater competition to the U.S. telecommunications market are also at work in Canada. One big difference, however, is that the Canadians—with typical caution—are trying harder to control the pace of change.

A clear sign of the direction the Canadian market is moving in will come this summer when the Canadian Radio-Television and Telecommunications Commission (CRTC) is expected to rule on a bid by CNOP Telecommunications to break a monopoly in Ontario, Quebec and British Columbia on public, long-distance service.

CNCP is a joint venture between two big diversified transport companies, Canadian National and Canadian Pacific. It already provides a private-line, dedicated service in Ontario, Quebec and British Columbia, as well as data transmission facilities throughout the country.

The CNCP decision is likely to have a ripple effect. The CRTC said last January that the marathon case, which involved over 50 witnesses, will give it an opportunity "to develop a more general regulatory policy regarding inter-exchange competition. In so doing, it will be the commission's objective to reduce future uncertainty regarding the federal regulatory response to competitive initiatives."

The Canadian telecommunications systems is at present an almost incomprehensible maze of national, provincial and even local companies, each group regulated by a different authority, but with enough exceptions and exclusions to throw the most hardened analyst off balance.

Bell Canada, a subsidiary of Montreal-based Bell Canada Enterprises, has a monopoly on local service in most of Ontario and Quebec, and owns a substantial stake in three utilities in eastern Canada. Other companies controlled by BCE include Northern Telecom, the world's biggest supplier of digital telecommunications equipment, and Bell Northern Research, a leading research group.

British Columbia Telephone Company, a subsidiary of the U.S. group GTE, has a mono-

poly on the West Coast and also falls within the jurisdiction of the CRTC. The debate in Canada on the principle of "universal service," one of the most sensitive facets of the North American telephone revolution.

As in the U.S., Canadian subscribers have up to now enjoyed the luxury of a low, fixed monthly fee for all local calls. The degree of cross-subsidisation between local and long-distance service is even greater in Canada. BC Tel, for example, spends 36 cents to generate C\$1 in trunk revenues, but C\$2.13 to produce C\$1 from local service.

The prospect of price-cutting has reopened the debate in Canada on the principle of "universal service," one of the most sensitive facets of the North American telephone revolution.

As in the U.S., Canadian subscribers have up to now enjoyed the luxury of a low, fixed monthly fee for all local calls. The degree of cross-subsidisation between local and long-distance service is even greater in Canada. BC Tel, for example, spends 36 cents to generate C\$1 in trunk revenues, but C\$2.13 to produce C\$1 from local service.

Revenue boost
CNCP's absence from the local market is one reason why its application for long-distance rights is strongly opposed by Bell and BC Tel.

To boost local revenues and give themselves flexibility to fight off the long-distance threat, the established companies are eager to introduce a system of graduated charges for local calls, known as "local measured service."

Bell's evidence to the CNCP hearings observed that "on the local service side, the existing flat rate structures and levels have provided little incentive

for Canadians to exercise restraint in their use of local facilities."

Bell insists that it has taken no firm decisions on DMS. But it has launched an ambitious public relations campaign to persuade sceptical users that the days of free local calls may be nearing an end. It has also filed an application with the CRTC for a general tariff increase.

The CNCP case may be a watershed, but it follows several moves in the last five years to open the Canadian market to competing services and products. By allowing telephone subscribers to buy their own equipment in 1980, the CRTC encouraged competition between equipment suppliers and spawned a lively inter-connect market.

Curbs on the ownership of earth satellite stations will be lifted in spring 1986. The cellular mobile radio market has been opened to competition, and cable companies are pressing for permission to enter fields now reserved for the telecommunications utilities, such as the high-speed data transmission.

The pace of change is sufficiently strong to attract many equipment suppliers to the Canadian market. Although AT&T has long been a supplier to the phone companies, it set up an office in Toronto in 1983 to expand its sales to subscribers, especially Canadian subsidiaries of U.S. companies.

AT & T hopes to capture 8 to 10 per cent of sales to business users by the end of the decade. Similarly, the Swedish group L.M. Ericsson has secured a pole position in the cellular radio-telephone market by licensing a supplier to Cantele Cellular Radio Group of Montreal, which plans to provide a portable telephone service in 23 Canadian cities, starting this summer in Toronto and Montreal.

Canadian companies are also spreading their wings. Moves by Northern Telecom (see profile) and Mitel into areas such as data communication and semi-conductors are well-known.

Gandalf Technologies, the pioneering, Ottawa-based manufacturer of data communications equipment, has signed supply contracts with several U.S. telephone companies for modems, multiplexers and switches. It is designing equipment for British Telecom's wide-band megastream and kilostream services.

The new spirit of free enterprise has raised a stormy question about the structure of the Canadian telecommunications industry. For example, several telephone companies have begun competing with suppliers, especially in data equipment.

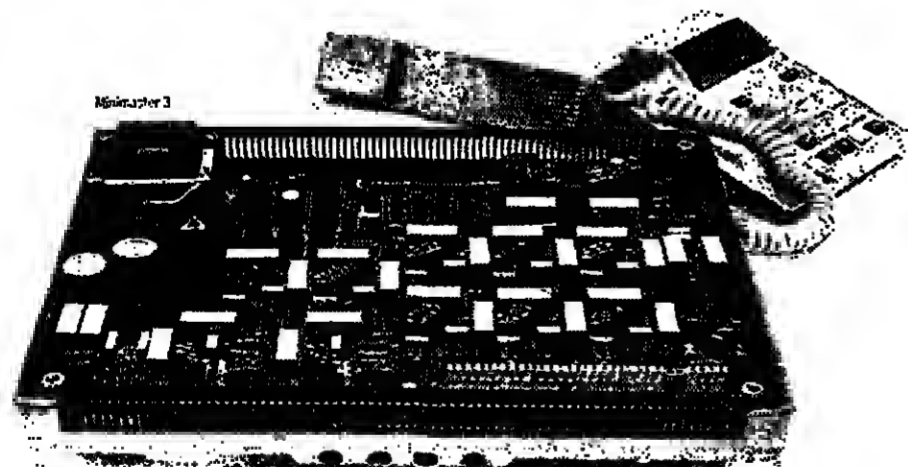
The propriety of Bell Canada's close relationship with Northern Telecom, its largest supplier, is frequently questioned. BC Tel has diversified in the past five years into production of switching and transmission equipment. One subsidiary manufacturing business terminals succeeded in capturing three-quarters of the market in its first year of operations.

A Long Government inquiry concluded in 1983 that tampering with the Bell-Northern Telecom-BNR relationship was not in the public interest. But the CRTC has reopened the issue by initiating a study into the need for telephone companies to set up arm's length entities for their competitive activities in data terminals, enhanced data and electronic mail services and cellular radio-telephones.

Bell Canada, BC Tel and CNCP, among others, were asked in November 1984 to submit comments on the matter. According to the commission, its methods to ensure that common carriers neither subsidise their competitive activities from their monopoly revenues, nor deny competitors fair and non-discriminatory access to the monopoly common carrier facilities they require in order to compete.

The CRTC will decide in April whether to hold a full-scale public hearing on the issue.

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Lake

International Telecommunications 11

Moves towards wider collaboration



London dockland earth station: a second British Telecom dish aerial is lowered into the capital city's dockland area which is at the heart of the UK's latest high technology communications scene. The first customer of the earth station was Satellite Television which transmits Sky-channel programmes to seven European countries, via an Intelsat satellite.

How companies are linking up

American Telephone and Telegraph (U.S.): Since AT&T won the right two years ago to compete outside the U.S. regulated telephone business, it has made two major industrial alliances—with Philips, the large Dutch electrical and electronics group, and Olivetti, Italy's leading office equipment supplier.

The link-up reflects AT&T's need to establish rapidly a presence on international markets, from which it had been absent for more than half a century, and to strengthen its product range, particularly in fast-moving competitive businesses such as office automation. AT&T and Philips Telecommunications, a joint venture based in the Netherlands, has been set up to market internationally versions of AT&T's No. 5 ESS digital public exchanges, and transmission equipment. So far, its only sizeable orders have been for public exchanges in the Netherlands, almost a captive market for Philips.

AT&T has acquired 25 per cent of Olivetti, with an option to raise its stake to 40 per cent eventually. Olivetti is supplying AT&T with personal computers for sale in the U.S. market. AT&T has also commissioned Convergent Technologies, a fast-growing Californian company, to develop workstations for it.

AT&T has also agreed on a joint venture with CITE, the Spanish telecommunications group, to build a microchip plant in Spain. Earlier last year AT&T bid unsuccessfully to acquire Iamsco, the British microchip manufacturer, which was later bought by Thorn EMI, the largest UK consumer electronics company.

British Telecom (UK): Watch this space. BT plans to expand internationally after privatisation and is weighing a number of options for collaboration, joint ventures and acquisition. The U.S. market is its prime target.

Cable and Wireless (UK): Since it was privatised by the British Government in late 1981, Cable and Wireless has announced a string of international acquisitions in a bid to broaden its business base, which depends heavily on telecommunications franchises in Hong Kong and Bahrain.

In Asia, Cable and Wireless has bought Hong Kong Telephone and has entered several telecommunications joint ventures in the People's Republic of China. It has also been granted a franchise to operate Macao's international telecommunications traffic.

In the U.S., the company is involved in plans to install high-capacity long-distance cable links along railway tracks in several parts of the country and is a partner with American consortium Tel-Optik in a project to lay a transatlantic optical fibre cable system. It also owns several small U.S. companies including TDX, a call-routing firm, and equipment distributor Carterfone.

UK projects

In Britain, Cable and Wireless acquired full ownership of Mercury Communications last year, after co-founders Barclay Merchant Bank and British Petroleum withdrew. Mercury, which is building a UK network to compete with British Telecom, operates transatlantic services in partnership with Western Union of the U.S.

Cit Alcatel (France): Cit Alcatel took effective control of the telecommunications business of Thomson, the number two in the French industry, about 18 months ago. Since then, it has intensified its quest for international partners to help it diversify and to share the mounting cost of developing new products.

It has had mixed success to date. It has teamed up with Philips in radiotelephones, but the alliance faces an uncertain future after the abandonment of Franco-German plans for a common cellular mobile system. Talks with GEC and Plessey of Britain on collaboration foundered after French efforts to sell Cit Alcatel's E10 public exchange to British Telecom were rebuffed.

Since then, Cit Alcatel has agreed on limited technical cooperation in public exchanges with Italy's Italtel and is discussing link-ups with West

Germany's Siemens. It is also collaborating with Xerox, the U.S. copier group, on computer software. In the past few years it has bought Friden, the U.S. framing machine company, and UK office products company, Ronco.

L. M. Ericsson (Sweden): Ericsson, a world leader in public exchanges, began diversifying into office automation and private data systems about five years ago, chiefly by acquisition. In Sweden, it has bought Datasaab, the maker of small computers, and typewriter and printer supplier Facit.

In the U.S., it has a joint venture with oil company Hamble Richmond which markets Ericsson telecommunications equipment and produces computer software on cables. It has also agreed with U.S. computer company Honeywell on plans to develop office equipment based on the two companies' products.

IBM (U.S.): IBM's expansion in telecommunications accelerated late last year, when it took control of Rolm, the U.S. leader in fully digital private branch exchanges (PBXs). It also increased to 60 per cent its stake in Satellite Business Systems (SBS), an ambitious but loss-making U.S. satellite communications network whose service IBM now sells through its own marketing force.

IBM operates a sophisticated data network, Information Network Service, in the U.S. It is developing an electronic financial information, and trading system with Merrill Lynch, the largest American stockbroker, and plans a home information services venture with CBS, the broadcasting company, and Sears, the retailing and finance group.

Thorn Ericsson, a joint subsidiary with Thorn EMI, makes telecommunications equipment in Britain. It is supplying network equipment for the Racal-Vodafone cellular radio system and is among the contenders to supply British Telecom with an alternative to Systex X public exchanges.

GTE (U.S.): The largest vertically integrated telecommunications company in the U.S., GTE has a joint equipment manufacturing subsidiary with Ferranti in Britain and a development agreement with Italtel. It also has subsidiaries in Canada, Brazil and Italy and is working with Wang, the American office systems supplier, to make compatible communications products.

IBM plans

In Europe, IBM has supplied computers and public exchange add-on equipment to British Telecom and is also building much of West Germany's public videotex service. But a proposal to launch a UK data network service jointly with British Telecom was vetoed by the Government last year.

Northern Telecom (Canada): Second only to AT&T in the U.S. telecommunications equipment market, Northern Telecom is seeking to diversify into office automation. But it is reluctant to tie itself too closely to any computer manufacturer, though it has technical cooperation agreements with companies including Sperry, Data General and DEC.

Plessey (UK): Plessey is counting heavily on expansion in the U.S., where it owns the public exchange business of Stromberg-Carlson and is linked closely with Scientific Atlanta, a maker of satellite earth stations and cable television equipment. It has yet to win any major American orders, however.

Standard Telephone and Cables (UK): The world leader in submarine cables, STC has recently weakened one set of old ties—with IIT of the U.S., which has reduced its stake in the company to 24 per cent—and forged a number of new ones.

In line with its strategy of technological "convergence," it has acquired ICL, the largest UK-owned computer company, which already markets under its own name a large PBX made by Mitel of Canada. STC has also bought International Aeradio, a British supplier of specialised communications services, and IIT's electronics activities in the UK.

Guy de Jonquieres

AS THE telecommunications industry strives to adjust to the rapid pace of change which is re-shaping its markets worldwide, companies are increasingly looking to collaboration to strengthen their commercial positions and enable them to expand and diversify into new fields.

Collaboration can take a number of forms, ranging from fairly informal agreements between companies to unit in support of certain technical standards through joint ventures in research, product development and marketing to outright acquisition.

As the accompanying table makes clear, the urge to collaborate is shared even by some of the world's largest companies, such as American Telephone and Telegraph and Philips of the Netherlands, which is Western Europe's biggest electronics and electrical group.

Nor are these alliances confined to companies whose main business has historically been telecommunications. The convergence of computing and communications technologies is spurring link-ups between partners which had until recently operated in quite separate markets. The recent acquisition by IBM, the world's largest computer company, of Rolm, the successful U.S. private branch exchange (PBX) manufacturer, is one example.

The trends have been most evident in the U.S. and Western Europe, and particularly between companies in these two regions. In the U.S., increasingly fierce competition is forcing the telecommunications industry to look abroad to enlarge its markets.

In Europe, where most national markets are still compartmentalised and dominated by state monopolies, companies are looking to the U.S. to provide economies of scale which they cannot achieve at home.

Alliances between European telecommunications companies have been relatively rare, though a modest trend is starting to develop in this direction. European manufacturers face two problems, however. One is that national restrictions make it difficult for them to sell on each others' markets. The second is that the main strength of most of the leading manufacturers is in public switching, which is an overcrowded market, and there is a high degree of duplication between their product ranges. Hence, little complementarity exists between their principal businesses.

Another feature worth noting is the virtual absence of significant collaborative arrangements between Japanese companies or with manufacturers in the West. This contrasts with the steady growth of alliances between Japanese, U.S. and Western European companies in large computers.

Part of the explanation for the discrepancy may be that, unlike the computer market, where competition is subject to few government restrictions, telecommunications markets in both Japan and Europe are still constricted by national monopoly policies.

There are four principal motives which, separately or in combination, underlie most of the collaborative arrangements reached recently. They are: 1—The need to share mounting development costs. This is a particularly important factor in public switching. It is estimated that the investment needed to develop a new range of digital exchanges today is

The convergence of computing and communications technologies is spurring more alliances among companies which, until recently operated in quite separate markets. On this page, Guy de Jonquieres highlights these developments.

not much less than \$1bn, and that sales of about \$14bn are required to justify the cost.

Increasingly, however, the trend among public telecommunications carriers worldwide is to split their switching orders between two or more competing systems. That makes it even harder for manufacturers to recoup development costs just on their home markets.

Examples of such collaboration include the joint venture between AT&T and Philips and the sporadic discussions between several larger European manufacturers on joint projects to develop the next generation of "superswitches."

2—Gaining a presence in new geographic markets. This objective is closely related to the first. European companies including Sweden's L. M. Eric-

sson and Plessey have sought to build a U.S. market base through joint ventures and acquisitions, while American companies including AT&T and GTE have taken local partners in a bid to sell more in Europe.

Such alliances, however, must contend with the national barriers which close off national telecommunications markets in Europe. Though France has proposed a reciprocal opening of national telecommunications markets in Europe but responses from other countries have so far been cautious.

3—Gaining access to new product and technology. The emergence of new markets such as office automation, which have grown out of the convergence of computing and communications technology, has stimulated link-ups intended to enable manufacturers to straddle a variety of technological disciplines.

Examples of such collaboration include the investments made by AT&T in Olivetti, by IBM in Rolm and by Standard Telephones and Cables of the UK in ICL. In many of these cases, joint product development is an objective.

4—Gaining marketing expertise. This is often the hardest part. Though their technologies are merging, the computer and communications industries still differ in terms of type of customer, market approach, selling methods and the ways

in which they manage their businesses.

Historically, telecommunications has been a capital equipment business, in which a large proportion of sales has been made to central telecommunications administrations—or in AT&T's case, to itself. The major determinants of the market have been engineering criteria and the replacement cycle.

Almost all telecommunications equipment manufacturers have faced a challenge in coming to grips with the more open competitive markets for products such as subscriber apparatus and, more recently, office automation. In most European countries, state monopolies have traditionally dominated even these markets. Several telecommunications companies have sought to overcome this handicap by buying into computer and office products manufacturers which have direct experience of selling to final customers. AT&T's purchase of 25 per cent of Olivetti—which is also supplying AT&T with product—is a case in point.

However, there are plenty of traps for the unwary, and mastering the art of marketing directly to final customers can be a demanding task. L. M. Ericsson has recently suffered some reverses in its private systems business, as did Northern Telecom after buying two U.S. computer terminal companies in the late 1970s.

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A scramble to boost production

U.S. PBX manufacturers

LOUISE KEHOE AND PAUL TAYLOR

THE U.S. market for large switches handling more than 500 lines is perhaps the most unpredictable, and fastest-growing, part of the market — at least in the short term. Currently, it is expanding at a clip of around 25 per cent per year and expected to peak next year when many Bell operating companies are expected to begin placing large orders.

This sector of the switch market is currently dominated by Northern Telecom, AT&T, Rolm and NEC. But there is a host of other competitors banging on customers' doors for orders and a number of manufacturers are also very keen to sell public exchanges to the new independent regional Bell operating companies.

These include L. M. Ericsson and ITT which is gambling much of its credibility in the U.S. market on selling its System 12, already highly successful elsewhere, to the Bell operating companies and others. Last year, ITT won its first System 12 sale in the U.S. when United Telephone of Florida ordered 12,000 lines by 1986.

ITT's task

ITT says it is currently negotiating with a number of the newly-independent Bell companies and claims to be "close" to winning its first order.

ITT will have to move fast because all the major players are scrambling to boost production and win orders in this sector. AT&T in particular is making a determined, and apparently successful, effort to win back a major share of the orders for large public switching equipment with its SESS switch. After completing a major overhaul including extensive automation of its SESS plant in Oklahoma City in late 1983, production has been expanding dramatically.

Having shipped only 27 switches with 180,000 lines before 1984, AT&T passed the two million SESS line mark in November and had shipped over 145 switches and 65 remote units by the end of last year. This year AT&T expects to ship 325 main switches and 160 remote units

with 6m lines.

The "medium" size PBX market is perhaps the slowest-growing part of the industry and its share of the overall market is shrinking from about 40 per cent in 1983 to perhaps 28 per cent last year. However, this market is also extremely competitive as established equipment makers vie for replacement orders with several new entrants. Most analysts suggest a growth rate of under 10 per cent a year for this sector.

Across the broad spectrum of the exchanges, European and Japanese manufacturers have increased their share of U.S. sales over the past year, aided by the strong dollar. NEC has been particularly aggressive; for example, it won an important contract from Sonoscan Systems, a southern New England telephone subsidiary.

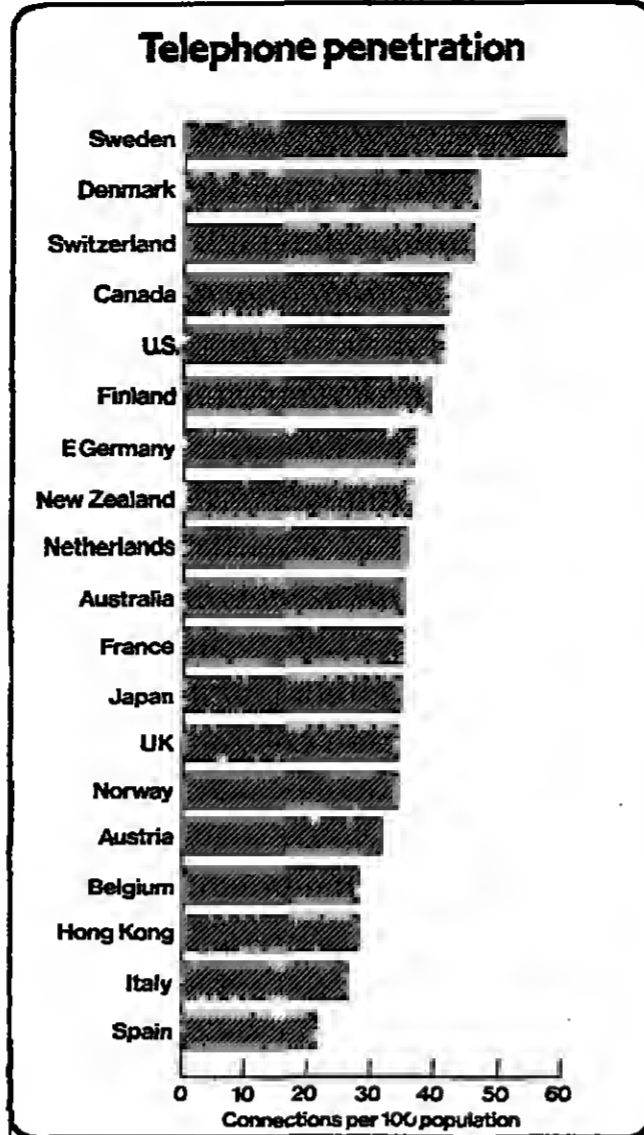
Estimates of the overall growth potential for PBX sales vary widely. Analysis at L. F. Rothschild's communications analysis group in San Francisco predict a 20 per cent industry growth rate to total about \$8bn by the end of the decade.

In contrast, other market analysts project growth of only 5 per cent over the same period. Indeed, parts of the market have proved highly volatile during the past year. For example, in October ITT restructured its US telecommunications business citing, among other factors, "an unanticipated market downturn during the past several months of PBX equipment and terminal equipment."

The pessimists suggest that the PBX business has enjoyed a once-only surge during the mid-1970s and early 1980s due to the changeover from analogue to digital systems. They see growth slowing to match population growth over the next several years.

However, other industry experts believe that new technology and new features will raise the price of new systems and create demand for replacement or enhancement of existing systems. By the late 1980s, as much as 40 per cent of the PBX business is expected to come from selling add-on extra features for installed systems, they say.

The PBX market is clearly maturing and manufacturers are scrambling to win market share. According to industry experts, competition is at an all-time high. Some manufacturers are even said to be selling below cost in a desperate attempt to



establish themselves before an anticipated industry shake-out occurs.

Already several companies, including Rockwell International and Telesonics, have folded their tents in the PBX business while other companies such as CXZ, Zitel, David Systems and Prolink are rushing into the market with new products.

Two trends are expected to boost PBX sales. The first is the anticipated growth of "tenant shared" telecommunications facilities: "A building manager would install a large switch (PBX) in a big office complex and then rent a PBX service to the tenants. Instead of buying their own PBX, the tenants would rent space on the master switch while having the privacy and security of their own system."

Growth rate

While this trend is not expected to dramatically alter the market size it could reduce the growth rate in the smaller (under 200-line size) system sector while adding a corresponding amount to the growth in the market for big PBXs and switches.

The other major technology trend in PBX equipment is towards combined voice-data systems which may breathe new life into the PBX business as well as creating a new market

sector for "universal" workstations, which are essentially personal computers with fancy telephone capabilities built into them.

U.S. sales of these "integrated voice/data terminals" (IVDTs) totalled \$100m in 1984 but could grow to as much as \$400m-\$500m by the end of 1986, according to market analysts. Already, however, dozens of companies are competing for a share in this emerging market. PBX manufacturers AT & T, Mitel, Northern Telecom, and Rolm have each introduced their own version of a "personal communications terminal."

Televideo and Wang, from the office automation world, are also involved, and at least half a dozen start-up companies are pitting themselves against the big companies with a variety of products ranging in price from as little as \$750 to over \$2,500.

Personal computer manufacturers including Apple, Compaq and Hewlett-Packard are also believed to be developing IVDT products, which could come to represent the next generation of desk-top computers.

The IVDT, whether known as a new type of personal computer, or regarded as a sophisticated telephone, seems likely to become a significant addition to the telecommunications equipment market this year.

Contracts reshuffle needed

Defence communications

BOB RAGGETT

NATO's VITAL command, control and communications (C3) is in a state of disarray. Political problems have thrown off course any overall strategy that might have existed, while the inability of some sectors of the electronics industry to produce and deliver equipment and systems for Nato programmes has seriously reduced the alliance's overall C3 effectiveness.

Some even argue that with the present unco-ordinated mix of old and new technology, the lack of a totally structured system architecture within Nato, and the delayed state of many programmes, in the event of a major armed conflict within Europe, Nato C3 could evaporate into a state of total ineffectiveness and confusion.

Dr Jon L. Boyes, former Vice Admiral U.S. Navy, and now International President of the influential U.S. Armed Forces Communications and Electronics Association, believes that the problems stem from the continued preponderance of contracts that ended up in American hands, with very serious results of non-production and limitations in even the ability of those systems to be deployed and to meet the specifications.

For example, says Admiral Boyes, of a large company winning a contract and then not paying enough attention to get the system "on the street."

The competitive U.S. environment has created the attitude among some U.S. companies of "let's win the contract at all costs and then worry about whether we can deliver or not."

Added to this is a political process which has developed over the past few years,



Marconi Clansman vehicle radio. The company has been successful in selling its systems to the U.S. Navy.

which has resulted in the establishment of a very powerful group in the U.S. which has decided, as part of the overall political theory of the U.S., that they will stop technology transfer, in the belief that some Europeans can't be trusted to prevent that technology falling into the hands of the Soviet Union.

According to Admiral Boyes, what you now have is Nato members looking sideways at their fellow nations and saying, "Well, I'm not sure that I can trust you."

There are signs of a realisation that a solution must be found and that Nato has to work together to use its combined technology resources to the full to maintain its lead over the Soviet bloc.

Admiral Boyes believes that U.S. industry will move back into a more reasonable way in Nato, not least because a number of key industrial leaders and military people are aware of past performance and realise the need to be a lot more present in their dealings with Nato.

What is already happening is that European companies are slowly taking control of Nato business with U.S. companies taking sub-contracts or forming consortia arrangements. While there seems no possibility of getting over the "Buy America" policy when there is a lot of money involved in a particular programme, European companies are beginning to pick up some orders from the U.S. Defense Department, particularly

in areas where they are able to demonstrate superior technical performance.

Marconi Communications Systems, for example, has been successful in selling its latest radio communications system to the U.S. Navy, while either Plessey or Thomson-CSF of France (in partnership with U.S. companies) is soon to be selected to supply equipment for the potentially lucrative Mobile Subscriber Equipment element of the major U.S. Tri-Tac battlefield communications system.

Key element

Indications are, however, that whichever company wins the order most of the manufacture will be carried out in the U.S. Integrated and efficient C3 is the key element of the whole reformation in Nato defence which has to come about. However, it is only part of a much broader problem which must soon be addressed: the overall role and individual contribution of Nato members in the defence of Europe. Space is a prime example, while we may not like the idea of seeing things into a battlefield, the U.S. leadership seems to see the process as almost inevitable and is putting a lot of money into space programmes.

Many Americans are calling for European countries to bear a larger burden of the cost of European defence and will certainly want to see increased efforts in the space area from its European partners.

Simple economics: and a changing attitude in the U.S. will dictate the need for Europe to become less dependent on U.S. military support. At the same time, there has to be a move towards greater trans-Atlantic technical co-operation, a realistic two-way street trading policy and a fairer distribution of Nato costs if the alliance is to maintain its technology lead. The balance is delicate.

International trade battles loom

Optical fibre transmissions

RAYMOND SNOODY

THE USE of optical fibres in telecommunications has developed in less than five years from small prototype systems to become one of the leading ways of carrying trunk telephone traffic.

Britain, Japan and the U.S. are increasingly using fibre-optics for trunk transmission. This technology is now spreading to the junction of the leading linking exchanges within a small area. And within three years, the first trans-Atlantic submarine cable to use optical fibres will have been installed.

Optical fibres are hair-thin strands of very pure glass which can carry huge volumes of telecommunications traffic in the form of tiny pulses of light, usually from a small laser. The advantages of optical fibre over copper cables are:

- The system is usually much smaller and lighter than conventional co-axial cable which, in turn, reduces the handling costs and makes it easy to fit into crowded city ducts.
- It is now significantly cheaper for carrying high volumes of information, such as on busy trunk routes.

• The signal sent along optical fibres needs less frequent boosting, which thus means fewer expensive repeater systems. It also means most repeaters can be stored within exchanges, rather than in damp holes in the ground.

• It is immune from electrical interference and is much harder to tap.

Although military authorities have a strong interest in the potential of optical fibre technology, its greatest use by far is in the area of telecommunications. American Telephone and Telegraph alone is installing optical fibre at the rate of 200,000 miles of fibre a year, and competitors such as MCI and GTE are also rapidly building new routes using fibre-optics.

One research company estimates that the U.S. will be installing 4.5m miles of fibre a year by 1990. Japan is building a fibre-optic "backbone," linking its main islands, and even has extremely ambitious plans to use optical fibres as a link with every home.

Britain is also one of the leading users of optical fibres: British Telecom has only been installing optical fibre in the trunk routes for nearly a year. Mercury, the new network competitor for BT, is building a core figure of eight trunk network in England which is based on optical fibre cables, which run alongside British Rail's tracks.

A sign that optical fibre technology has truly arrived is that it has now become the subject of international trade battles. Last autumn the U.S. Commerce Department warned that the American lead in the field was being jeopardised by the threat of subsidised competition from other countries and closed markets.

"Foreign manufacturers will inevitably penetrate the U.S. market to a degree that under current demand conditions, U.S. firms will be unable to match in their efforts to sell abroad," the department warned.

Accusations

The U.S. fears that optical fibre development in many countries is being funded to a much greater extent by national governments than it is in the U.S. There have also been accusations that Nippon Telephone and Telegraph is paying considerably more than prevailing world prices for optical fibre systems which has cross-subsidised Japanese submarine cable. Such as Sumitomo and NEC, in export markets.

One area where there is likely to be very keen international competition is in submarine cable systems. Britain's Standard Telephones and Cables, the world's leading supplier of such systems, is building the first international undersea link to use optical fibre. The cable will run between Britain and

Belgium and is expected to go into service this year.

Most attention is being focussed on the new trans-Atlantic cable TAT-8, which is expected to come into service in 1988. The cable is being built in three parts which meet at a junction box under the ocean, close to the European coast.

The major share of TAT-8 is being made by AT&T, which is also the largest shareholder (36 per cent) in the cable project. AT&T will be supplying the 3,150-mile stretch from the U.S. to the junction for \$250m. STC won the 700-mile stretch from Britain with the French consortium, won orders worth \$33m.

The unusual method of building the cable with a junction box enables all three companies to build a complete section of the system. There is still some uncertainty, however, as to whether optical fibre technology will survive as long under the sea as conventional copper cables. The design life of a submarine cable is 25 years.

Such worries have not deterred plans to install the first private enterprise trans-Atlantic fibre optic cable. Britain's Cable and Wireless, and a group of U.S. investors, have set up a joint-venture, Optelco, which is to spend \$600m building two fibre optic submarine cables. The first of these will come into operation in June 1989.

Competition grows fiercer

Mobile systems

GEORGE CHARLISH

THE DEBUT next Spring of Britain's new cellular radio-telephone systems, Cellnet and Vodafone, will be only the opening phase in a competitive technology struggle to provide the best, lowest cost service for the expected 30,000 or so first year customers.

For example, an unknown outsider, Excell Communications (a British company) has already surprised the electronics giants with a hand-held portable that weighs only 1 lb and measures a mere 3 x 3 x 1.25 inches. Ericsson, too, with a relatively long cellular experience in the Scandinavian NMT system, has just announced a 50 per cent size reduction in its vehicle sets. Size and weight will prove crucial to sales.

In addition, there is already talk of "second generation" cellular radio, probably to European standards, that will be all digital, possibly using packet switching techniques of the kind used to send data over land lines more cheaply and efficiently.

Both cellular radio and another emerging technique called community trunking are aimed at overcoming the 50 year old bete noire of radio communications — the filled waveband.

Since World War Two, mobile communications frequencies have been steadily increased (they are now at 900 MHz) and speech bandwidths have been cut to accommodate more channels. But demand has always outstripped supply, keeping prices artificially high.

The big advance came in 1959 from Bell Laboratories—cellular working. But only since the mid-70s have computerised channel tuning, frequency synthesis and high speed electronic switching been available to implement it. A conventional system for a city often uses a single, centrally placed, radio transmitter giving coverage of 15 to 20 miles. Such a system might be allocated 50 channels. But the high power of the transmitter needed to reach vehicles at the city's edges means that the signals will sometimes be picked up much further away. So the 50 frequencies cannot be re-used within perhaps 100 miles for fear of mutual interference.

Cellular radio

Cellular radio allows the channels to be used over and over again. The city area is divided into a number of "cells" (areas) a mile or two across, each with its own low power transmitter (and a receiver) just able to reach the cell edges.

None of the transmitters—there might be eight or so in a city the size of London—can send signals beyond perhaps 15 miles, allowing a set of cell frequencies to be deployed again just beyond that distance.

All the cell base stations are connected by leased telephone lines (or microwave links) to a controlling computer which acts like a telephone exchange. This in turn is linked to the national wired telephone network.

A mobile user dials the number he wants and his unit sends it to the cell base over a permanently available control channel. The base station relays the number to the special computer/exchange which then does two things.

First, it allocates a free radio speech channel and tells the mobile (over the control channel) to tune to it. Secondly, it dials out the number the mobile wants into the public telephone network. In a few seconds, the two parties are talking.

Calls from the public fixed network (a special code is dialled) come into the cellular system exchange, which pages all the mobiles over the control channel. They all immediately compare the number with their own, the matching recipient responds, is allocated a speech channel, and receives the call.

When a vehicle moves from one cell to another the system knows because the new cell's receiver starts to get a stronger signal than the old. Then if a call is in progress, the vehicle is allocated a new frequency from the new cell's set of channels. The process takes about 0.5 sec and is usually undetectable by the user.

As and when demand in-

creases, the cells can be divided into smaller ones with lower transmitter powers. Further re-use of frequencies in nearby cells becomes possible, yielding more channels.

The other technology, trunking, is the subject of four pilot projects in London conducted by Relcom Communications, Storno, Pye Telecommunications and Motorola/Audiolink.

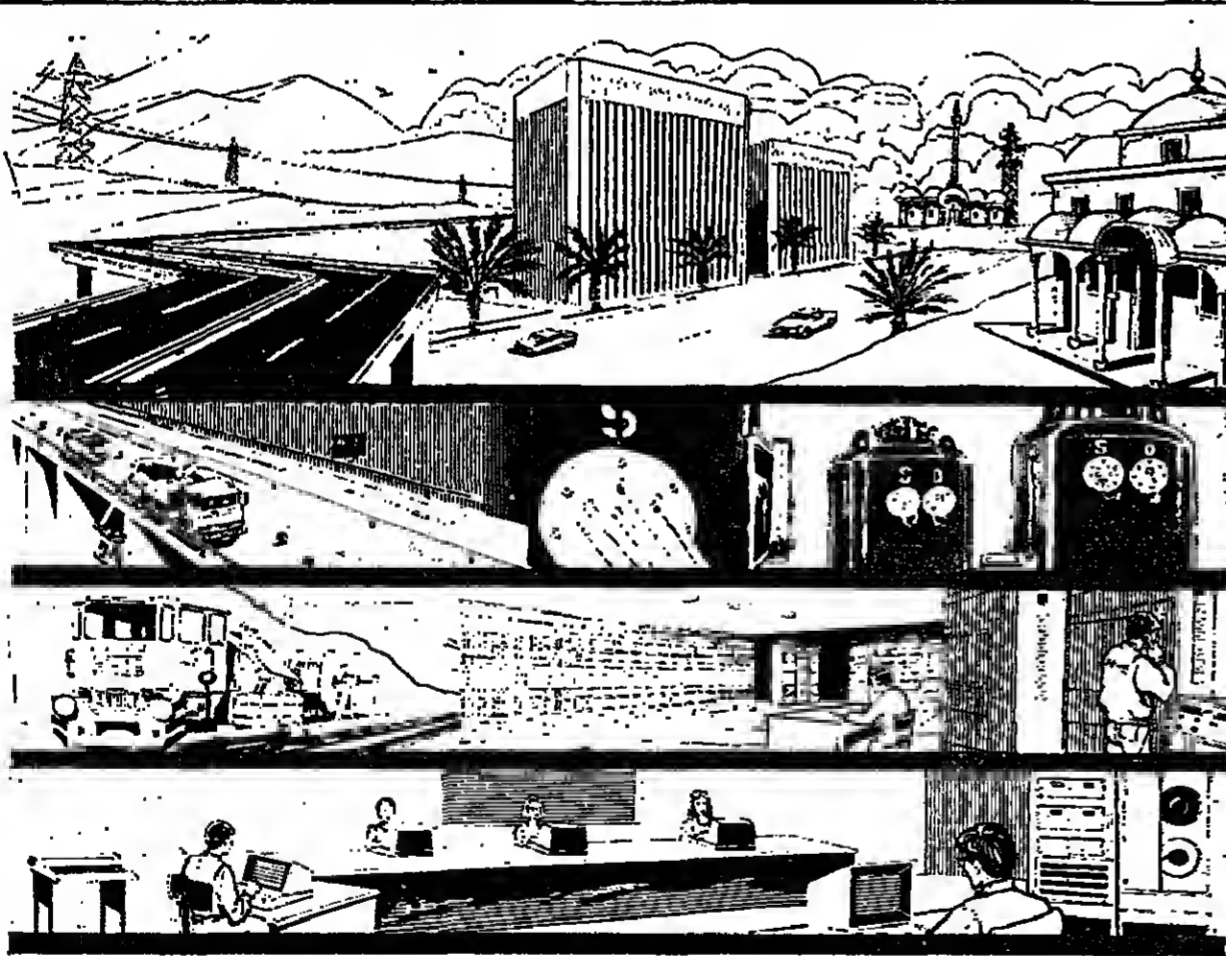
In a particular area, instead of a number of private user groups each having a fixed channel frequency, a number of channels are allocated to the area and each group is dynamically assigned one of them by a computer when the need arises.

In theory, the allocated channels can be kept fully occupied, implying more users, or fewer channels.

In this matter of new two-way radio speech offerings, what is the future for paging, in which a user is "bleeped" to observe a tiny displayed message on a matchbox-sized receiver, and then finds a phone?

In-house paging in big hospitals, airports, industrial and commercial sites seems to be the user who is conveniently busy and there is always a phone nearby. But the effect of public cellular radio on public paging is another matter. Although the latter is much cheaper, it does rather depend on good public call box availability.

Alex Folliard of Multitone wants in-house pagers with dialling pads, to allow dialling out via the PBX, and has pleaded for new frequency allocations.



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International Telecommunications 13

On the threshold of a new era

Satellites and cables

RAYMOND SNOODY

A NEW "half-open" skies era is about to dawn in satellite communications which will lead to growing competition over the rest of the decade.

With the full weight of an electoral landslide behind him, President Ronald Reagan in November moved to create the first breach in the 20-year-old monopoly over international satellite communications held by the International Telecommunications Satellite Organisation (Intelsat).

President Reagan has agreed to allow U.S. private sector competition in international communications satellite systems. The decision allows the U.S. Federal Communications Commission (FCC) to begin processing six applications from American companies—four of which are interested in the lucrative trans-Atlantic business—to compete with the 109 nations Intelsat.

The changes will not happen overnight. It could take as long as four years for the FCC to deal with the applications and for would-be private operators such as Orion Satellite Corporation and Cygnus Satellite Corporation to begin offering a competitive service.

Restrictions

Strict limits will also be set to the degree of competition in an attempt to protect the financial viability of Intelsat. The private operators will be restricted to intra-company video, data and voice transmissions. The private U.S. telecommunications services will not be allowed to carry communications between corporations or telephone between individuals.

The Reagan administration claims that the limitations will protect about 85 per cent of Intelsat's revenues from competition.

The Reagan decision is, however, likely to prove historic despite the qualifications. Intra-company data traffic is the fastest growing and most lucrative sector of the business and it will be very difficult for regulators to distinguish in future between data and digitised voice traffic.

At the time when competition between private and public sector satellites could be start-

ing to intensify fibre optic transatlantic cable, will expand telecommunications capacity. A group of 28 of the world's leading telecommunications authorities hope to have the first transatlantic submarine fibre optics cable in operation by 1988.

Cable and Wireless together with Tel-Optik of the U.S. hope to follow in 1989 with the first private enterprise cable across the Atlantic using strands of pure glass as thin as hair. They plan a second cable for 1992. Each would have the capacity to handle the equivalent of 12,000 simultaneous telephone calls.

Cable and Wireless believes that fibre optic cable will increase the tendency to use cable capacity on high density routes and satellite on dispersed or multi-point routes.

However in Europe at least the growth of international telecommunications business has been greatly in excess of forecasts of even a few years ago.

Sig Andrea Caruso, secretary-general of the European Telecommunications Satellite Organisation (Eutelsat) pointed out recently that experts had once "demonstrated categorically" that no more than 300 or 400 international telephone circuits between remote locations in Europe would be able to make economic use of satellites.

But despite having something like 12,000 telephone circuits Eutelsat's ECS satellite has been operating at full load since October 1983. The demand for additional satellite services in Europe, largely in the area of television distribution, will make it necessary to add a third ECS satellite to the present two this year.

"As far as Eutelsat is concerned the prospects for satellite communication in Europe are very promising indeed, with the necessary steps already having been taken to meet international market demand for public telecommunications services for at least another ten years," Sig Caruso told a Financial Times Telecommunications conference.

However, Sig Caruso gave a pessimistic view of the prospects for direct broadcasting by satellite (DBS) in Europe. He appealed to European countries to get together to share the financing of common satellites which would carry a large number of channels to make such projects viable.

Such co-operation would mean a single second generation DBS

system for Europe instead of five or six.

"This alternative is, believe me, worth considering if our wish is to make DBS reasonably viable from a financial point of view," he added.

But whatever the hopes for second generation DBS plans to get DBS in Europe going in the first place received a boost over Christmas. M. Laurent Fabius, the French Prime Minister, announced that TDF-1, the DBS satellite being produced under a Franco-German co-operation agreement, would be launched on July 7 1985.

1988 launch

More significantly, M. Fabius said that TDF-2, which would make the system fully operational, would be launched in 1988.

M. Fabius unveiled the plan in a letter to M. Jacques Pomont, head of France's National Audiovisual Institute asking him to set up a new company to run the operation. The Government would hold a blocking minority in the new company which would be seeking private sector finance.

The formal decision by the French to go ahead with a two satellite DBS system will increase pressure on the British not to be left behind, particularly as the French DBS broadcasts should be able to be picked up over most of the UK.

The British project, which groups the BBC, the ITV companies and five non-broadcasting organisations, still faces considerable uncertainty. The prospective operating consortium has asked Mr. Leon Brittan, the Home Secretary, for permission to go to international tender for the satellite system. It believes the £30m a year quoted by United Satellites, the UK satellite consortium is so high that it would make DBS uneconomic.

As Mr. Brittan's response is awaited the final decision on British DBS now seems unlikely before the spring.

Uncertainties over DBS are also reflected in the prospects for cable television—the other major arm of the new media. In Britain more than a year after 11 pilot franchises were chosen to begin what was supposed to be a multi-channel cable television revolution, only one—Swindon—has begun and many of the others are having difficulty raising the necessary finance.

In Germany, despite government financial support, there is

a deep division on how cable should develop.

Governments of the Laender, or states, are split along party lines. The seven Christian Laender favour free competition while the Social Democrat Laender are anxious to protect the public service broadcasters.

France has the most ambitious cable plans of any European country with a FFfr 30bn programme spread over 20 years. But here too there have been criticism both of delays in legislation and policy decisions and of the high cost of fibre optic installation.

Mr. Stuart Young, chairman of the BBC, seemed to sum up the present state of new multi-channel cable television in Europe at a conference last autumn when he described it all as "a reluctant revolution."

Fibre optic cable systems offer big advantages in areas of Technology and economy, particularly on high density routes. Right: Peter Tait, a British Telecom engineer, working with optical fibre cable during the Portsmouth to Isle of Wight underwater cable-lay project



Industrial shakeout gathers momentum

Public switching systems

JASON CRISP

THERE IS one thing on which the world's telecommunications suppliers agree. There are too many companies offering digital public telephone exchanges, and there is no doubt that many will have to withdraw from the field.

The problem is that the world demand for public telephone exchanges is not big enough to support the enormous escalation in development costs. Today, it would probably cost over \$1bn to develop a new digital telephone system. In addition one leading manufacturer says it costs \$100m a year in research and development to keep the system up to date and competitive.

The consensus is that there will be no more than nine suppliers with three each in Europe, North America and Japan although some think it

could have even less. There is less agreement about which companies will remain as prime suppliers of telephone systems.

However, the shake-out in the industry is already underway. Last year, the Swiss abandoned an attempt to develop their own digital system and held an open tender. They have adopted System 12 from ITT Corp, the U.S.-owned multinational, and AXE from LM Ericsson of Sweden.

Two years ago Philips, the Dutch electricals giant, abandoned its attempt to develop a digital switching system after spending several hundred million dollars. Philips teamed up with American Telephone and Telegraph to form a joint venture to sell the U.S. giants No. 5 ESS exchanges in world markets.

Following a major reorganisation of the French telecommunications industry Thomson has also withdrawn from the telecommunications business with its assets being transferred to its old rival CIT-Alcatel.

One result of the rationalisation of the French industry is that for the first time France is prepared to consider buying exchange equipment developed outside the country.

Outside the U.S., practically every industrialised nation has maintained a closed market for telecommunications switching equipment, which has remained the prerogative of the domestic suppliers.

Fundamental changes

That France, of all countries, should even indicate it would consider an outside system is a measure of the fundamental changes which are now taking place in the industry. The French have been seeking a reciprocal trading arrangement with another country, such as Britain, so that its telephone authority (PTT) would not be exposed to the risks and costs of only having a single supplier.

Other countries which would not have dreamt of even looking at another telephone system are now considering buying them. In West Germany the Bundespost has for the first time accepted two types of

telephone switch, the EWS-D from Siemens and System 12 from Standard Elektrik Lorenz, a subsidiary of ITT.

To the initial amazement of the indigenous suppliers—Plessey, GEC and Standard Telephones and Cables—British Telecom has invited tenders for a second digital system. BT itself had largely paid for the development of System X, the long awaited digital exchanges, which have just begun to be installed.

After a major reorganisation which meant STC was no longer a partner in the System X project BT announced it would seek an international tender for a significant part of its switching needs. BT is close to a conclusion in its evaluation of the three short-listed candidates, Thorn-Ericsson (a joint venture between Thorn EMI and LM Ericsson, Northern Telecom of Canada and Philips/AT&T).

Although no indication has been given of the size of the initial order it is likely to mean substantial further business as BT has indicated it would like to buy between 10 and 15 per cent of its needs from a second source.

The U.S. market is also in a state of turmoil as a result of the break-up of AT&T at the beginning of last year. The main suppliers in the U.S. have been AT&T itself and Northern Telecom, the high-flying Canadian telecommunications group. A number of other companies are now trying to expand business or break into the market by selling to the independent regional Bell operating companies. Companies seeking this market include General Telephone and Electronic, ITT, CIT-Alcatel, LM Ericsson, and Plessey through its U.S. subsidiary Stromberg-Carlson.

Business outside the Western world has always been competitive and is being spurred by the knowledge that there is a fight for survival in telecommunications switching. Cut price sales can be justified on the basis that it helps defray the development costs and is likely to mean follow-on orders. In addition there is a growing business in training for maintenance and installation and the establishment of local manufacturing—a vital ingredient in any export deal.

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International Telecommunications 14



Technological advances are opening up almost unlimited horizons of innovation and choice in the area of international telecommunications. Above: America's Space Shuttle roars away from the launch pad at Cape Canaveral. The project has greatly increased the scope for research in communication satellite technology.

Upheavals worldwide

CONTINUED FROM PAGE 1

BT itself has adapted to the market Japan also appears set on controlling access to its market once it is deregulated. To a large extent, this reluctance stems from industrial policy considerations. In the UK, particularly, the government's initial enthusiasm for the virtues of untrammelled competition was quickly tempered by concern that its market would be overwhelmed by foreign entrants which would sweep aside the domestic industry.

In continental Europe, the picture is complex and confused. There have been tentative movements in several countries towards a relaxation of monopoly rules over apparatus and services, though none is yet considering introducing competition in public networks, as the UK has done by licensing Mercury Communications.

There have also been discussions, both bilaterally and at EEC level, about proposals for closer European industrial collaboration, the harmonisation

of technical standards and reciprocal procurement. How far and how fast progress will be made on these fronts remains uncertain, however.

A number of European telecommunications monopolies (PTTs) still seem to believe that they can minimise the impact of the upheavals elsewhere in the world by insulating their national markets. While this may well be true in the near-term, it is questionable how long it will hold good in an industry whose technology increasingly ignores national frontiers.

Perpetuating such policies will also keep European markets fragmented, when the survival of European telecommunications manufacturers requires economies of scale far larger than their home markets can provide.

Of all the pressures for change, perhaps the most powerful is the increasingly dynamic inter-relationship between communications and the rest of the economy. The availability of efficient, flexible and technologically advanced communications facilities is closely linked to fundamental changes in the

structure and operations of industries as diverse as banking and financial services, broadcasting and manufacturing.

Communications and the needs of the customers which it serves feed off each other. In the U.S. large corporate users are already taking charge of their own communication operations, rather than relying on carriers such as AT&T, further muddying the distinctions between once separate industries.

Few other countries yet permit such freedom. But it does seem that information flows and the means by which they are transmitted are becoming fused together. For much of the past century, progress in telecommunications was determined largely by the technical ingenuity of the suppliers.

Today, as technological advances open up almost unlimited horizons of innovation and choice, the needs of users are becoming an increasingly decisive factor in the industry's future development. To turn Marshall McLuhan's celebrated phrase around, the message is becoming the medium.

How technologies are combining to speed up the desk-top revolution

A big spur for productivity

TELECOMMUNICATIONS has been a spur to productivity in the office since the invention of telephony. In the modern office, however, shaped by the convergence of computing, telecommunications and office systems, it takes on an importance far beyond its traditional function of distributing voice, telex and telegraphic messages.

Using as their common currency the binary code, the language of computers and computing, telecommunications networks are able to distribute, store and recall voice messages, facsimile images, video images, data and text.

Manufacturers are starting to launch desktop devices—"integrated workstations"—designed to take advantage of the new potential.

In the U.S. and now in Europe, for example, Northern Telecom has been selling the "Displayphone"—a combination of data terminal and telephone which enables an executive to conduct a "hands-free" telephone conversation, examine information held on a private or public database or send a letter by electronic mail.

Two months ago in Britain, ICL launched its "One-per-Desk," a multifunction workstation designed in conjunction with Sinclair Research.

It featured advanced telephony—hands-free operation, last number recall, on-line directories and so on, together with considerable computing power—word processing, spreadsheet and database software.

It was modelled to some extent on the Sinclair QL microcomputer, and so some might argue against its use of Sinclair's idiosyncratic "micro-drive" storage units, but nevertheless it is one of the first desktop units to combine voice telephony and computing in a single package.

To give an idea of the way things are going, the Grid "Compass" portable computer, one of the best but also the most expensive of the lap machines, can be supplied fitted with a telephone handset.

Frost and Sullivan, the New York-based market consultancy, recently carried out a survey among potential users of integrated workstations; it found that 63 per cent of its sample wanted an executive workstation tied into the telephone network.

Of that sample, 77 per cent were anxious to be able to see information held on mainframe databases, 71 per cent wanted to be able to communicate with

Automation in the office

ALAN CANE

other managers or professionals and 53 per cent wanted to be able to make contact through their workstations with people who reported to them.

But true executive workstations do not exist at present except in prototype form—cannot exist, in fact, until national telecommunications networks become all-digital.

The three workstations already described use separate exchange lines to transmit and receive data and voice or are able only to handle voice or data at any one time, chiefly because of the deficiencies of telecommunications systems as they exist today.

The ideal would be a telecommunications network worldwide operating only in digital fashion, but that is some way off yet.

Contrasts

Conventional voice telephony operates in analogue fashion—voice and data is represented by an electrical signal which varies continuously.

In a digital network, on the other hand, all information is represented by discrete pulses of electricity and clever timing of electricity can be established so that a number of different kinds of messages can be transmitted simultaneously and unscrambled according to the time they arrive at the receiving end.

This is called an integrated services digital network (ISDN)—existing networks may transmit information in digital form from switchboard to switchboard—the long hops—but the local loops from handset to



In the UK, a Mercury trunk microwave link connects Birmingham with London. This is being supplemented by the first phase of Mercury's optical fibre trunk network. Trunk antennae and local distribution equipment are sited on Alpha Tower, with direct line of sight across the City of London.

switchboard remain firmly analogue.

Writing in Science magazine, Mr. John Mayo argued: "Ultimately, the expansion of digital technology and user demand for data orientated services will lead to realisation of the integrated services digital network."

This public, nationwide, end-to-end digital capability will let the user choose the type of terminal to be used, the rate at which information will be transmitted and the size and density of messages—and will also allow simultaneous provision of a variety of voice and data services.

Already the first of these new services are starting to make their mark. After word processing, for example, the first electronic office system a company installs is usually electronic mail.

Within a few weeks, staff in these companies find their electronic mail system indispensable. The theory of such systems is simple. The British Telecom "Gold" electronic mail service, for example, which is based on a system developed by Dialect in the U.S., comprises a number of central computers or "post offices." Each post office holds

the mail for its customers in electronic pigeonholes in its computer memory.

Letters can be transmitted to any mailbox by anyone with access to the system, but the contents of a mailbox can only be read by someone with the right passwords (much has been made recently of computer "hackers" gaining illegal access to electronic mail boxes; this is easy if the passwords can be obtained one way or another, but very difficult otherwise. In other words, computer systems are at much more risk from conventional betrayal of trust than from technological wizards).

Facilities

Each user can call into his or her mailbox from anywhere in the world, using a portable computer if necessary, to catch up with the latest news, messages, and so on.

He or she can also despatch messages using the portable computer to colleagues on the "mail run." Future developments could include voice synthesis technology built into the mailbox which would enable the user to have his mail read to him automatically over a conventional handset, so obviating

the need to carry around a portable computer terminal.

After a slow start, electronic mail seems likely to become an important part of office automation. Voice mail, however, offers a cheaper approach which is just as useful in many cases.

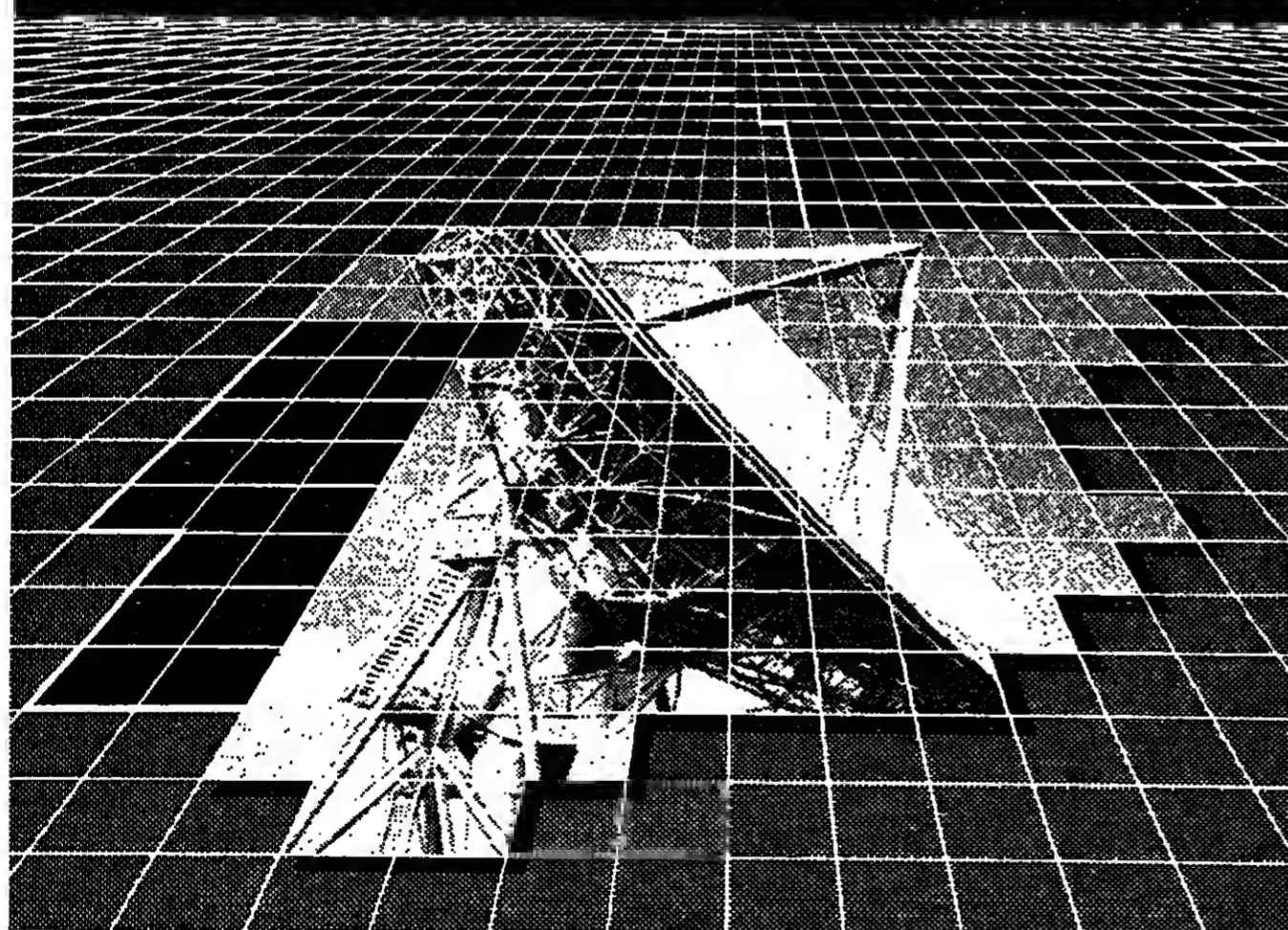
Such a system converts messages into digital form and stores them in a computer memory; the recipient simply dials into the database to have the message relayed in voice form.

Video teleconferencing—the transmission of either full video or "compressed" images and local area networks (LANs)—which allow fast, efficient, economical transmission of data from workstation to workstation

are among the techniques which are being used increasingly to satisfy that majority of office workers who want their office technology to help them make better contact with their colleagues. Viewdata is another technology using conventional telecommunications that has a role in the future office.

But the real key in the future is ISDN: for the world's telecommunications authorities, the principal challenge is how quickly and how well they can establish and commission these advanced networks.

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FINANCIAL TIMES
CONFERENCESCommunications in the UK
-The Challenge of ChoiceHotel Inter-Continental, London
24 & 25 April 1985

A date for your diary — The Financial Times high-level meeting on Communications in the UK to be held in London on 24 & 25 April, 1985. This conference is designed for directors and managers who are considering how their companies will adapt to the challenge of wider choice in communications. The presentations will aim to give guidance on some of the questions which need to be considered:

- * Is the technology at a stage where it can practically be applied?
- * What are the criteria to adopt in budgeting for new products?
- * What are the management implications, the changes in internal relationships and ultimately to the very business?

This meeting will coincide with Industrial and Trade Fairs Communications exhibition at the Earls Court Exhibition Centre, London. The sponsors believe this conference will provide a valuable opportunity for senior management to debate and exchange views on the challenges of wider choice and to generate a background of understanding of current trends against which the exhibition itself can be viewed.

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